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AMERICAN ANTHROPOLOGIST

NEW SERIES

The AMERICAN ANTHROPOLOGIST (NEW SERIES) is published quarterly, each number containing about 184 octavo pages, with illustrations, forming an annual volume of 736 pages.

The editors aim to make the journal a medium of communication between students of all branches of Anthropology. Its contents embrace (1) high-grade papers pertaining to all parts of the domain of Anthropology, the technical papers being limited in number and length; (2) briefer contributions on anthropologic subjects, including discussion and correspondence; (3) reviews of anthropologic literature; (4) comments on periodical literature; and (5) minor notes and news.

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No. 2

RECENT CAVE EXPLORATION IN CALIFORNIA¹

BY JOHN C. MERRIAM

INTRODUCTION

During the last three years a series of investigations has been carried on by the Department of Anthropology of the University of California, with a view to determining, if possible, the time when man first appeared in this region. As cavern deposits have furnished some of the most important materials in the study of early man in other regions, it was considered desirable, as one of the phases of this work, to make a careful paleontological and archeological investigation of the numerous limestone caves of the state. In this study the effort has been made to obtain as complete a knowledge as possible of the mammalian faunas which have existed in this region between early Quaternary time and the present. Man is considered as a possible element of the fauna, and so far as his geographic or his geologic occurrence is concerned he must be subjected to investigations of much the same character as are used in the study of other organisms. Until the facts of this class are determined, it is difficult to make a beginning on matters which are perhaps more definitely anthropological.

The discovery of human relics, apparently in association with remains belonging to a Quaternary fauna, in the extreme southern portion of South America leads one to suspect that an early migration of the human type may have passed over North America into

¹ Read at the meeting of the American Anthropological Association, San Francisco, August 30, 1905. Including a partial report to the American Committee of the Archaeological Institute of America on the explorations made under an appropriation by the committee for the work in 1905.

South America. That other mammalian types came into America in fairly recent geological time we know, and there is no inherent improbability in the theory that man came with the other mammals. If his remains are found with a Quaternary fauna in the southern continent there is good reason why we should search for them here.

Up to the present time only a few caves situated in Calaveras county and in Shasta county have been examined. Many other occurrences are known, but limitations of time have made it impossible to visit these localities. One would hardly be justified in stating that as yet more than a beginning has been made on the possible cave investigations of California. It is to be hoped that in time these studies, in connection with the other phases of this work, may give us some definite information regarding the date of man's appearance in the Pacific Coast region.

MERCER'S CAVE

In the summer of 1901 Professor F. W. Putnam and the writer examined several caves in the vicinity of Murphys, Calaveras county, and in 1902 Dr W. J. Sinclair visited a number of caverns in the same region. The most interesting remains encountered were those in the well-known Mercer's cave near Murphys. In this cavern there were found a number of bones of an extinct ground-sloth, which has recently been described by Dr Sinclair as the type of a new species, *Megalonyx sierrensis*.¹ The bones of this animal were covered with a deposit of stalagmite, ranging from a few millimeters to about half an inch in thickness. From their situation it appeared that the body of the animal had fallen into the main chute of the cave, and in the process of decay the remains had been scattered for a considerable distance along the passageway. In the same cavern, although not in close proximity to the *Megalonyx* remains, there were found a number of human bones bearing a very thin calcareous incrustation. It appears that in this region it has been at some time the custom of the aborigines to throw the bodies of their dead into such caverns as this, and in places great numbers of skeletons

¹ Wm. J. Sinclair, New Mammalia from the Quaternary Caves of California, *Publ. Univ. Calif., Geology*, vol. 4, no. 7, p. 155.

have accumulated. The human bones found in this cave were in such position as to indicate that they had been thrown into the first chamber through the small opening above, while the *Megalonyx* remains had fallen some distance below this chamber. While it is exceedingly difficult to form any estimate of the relative ages of the human bones and the *Megalonyx* remains, such evidence as we have seems to indicate that the remains of man are the younger, as they are nearer the opening and are covered with a much thinner layer of stalagmitic material. The human bones are, however, probably many years old. While the relative thickness of the covering of stalagmite is in itself no absolute criterion as to the age of the enclosed material, as it may accumulate very rapidly in one place and very slowly in another place, it is probable that the thinner layer on the human bones means a shorter period of entombment.

POTTER CREEK CAVE

The most extensive investigations of the caverns have been carried on in Shasta county. In this region two large caves have been very carefully explored and the principal deposits almost completely worked over. These are Potter Creek cave, on the McCloud river, near Baird, and the Samwel cave, on the same river, fifteen miles above Baird.

Potter Creek cave was the first to be the subject of careful investigation. It was discovered in 1878 by Mr J. A. Richardson, and by him several specimens of fossil bones were sent to Professor E. D. Cope. In the summer of 1902 Mr E. L. Furlong explored the cave again, without knowing that it was the one discovered by Mr Richardson. Large deposits of fossil remains were found, and excavation work was carried on by him and by Dr Sinclair through that season. Throughout the whole of the summer of 1903 the work was in charge of Dr Sinclair, whose excellent report¹ on this work has already been published. The floor of the cave was carefully surveyed and all specimens taken out were labeled with reference to their position in the strata. The deposits were excavated to a depth of 25 feet, below which there seemed to be little but an

¹ *Publ. Univ. Calif.*, North Amer. Archaeol. and Ethnol., vol. 2, no. 1.

accumulation of stalagmite-covered bowlders. The exploration work furnished several thousand bones and fragments, of which between 4,000 and 5,000 were determinable specimens. The remains include those of many extinct animals, and furnish the most satisfactory representation of the Quaternary fauna of California that has yet been obtained in any one locality. Fifty-two species were listed by Dr Sinclair, of which at least twenty-one were found to be extinct.

Associated with the remains of the Quaternary fauna in Potter Creek cave there were many broken, splintered, and polished bones, which were carefully investigated by Dr Sinclair, having been considered as possibly representing the work of man. The presence of the splintered bones is yet to be thoroughly satisfactorily explained, though there are many ways in which they might have been formed or introduced. In the caves of Europe such splintered bones are in part due to the splintering of long-bones of large mammals by man, and in part to the crushing of such bones by the larger carnivores.

The character of the pointed and polished bones figured by Dr Sinclair in his paper is also difficult to determine with certainty. These polished fragments strongly resemble many of the roughest implements found in the deposits of the shell-mounds of the Pacific coast. Possibly they have been rough bone splinters, used by man until they attained the degree of polish which we find upon them. On the other hand it is noted that in nearly all shell-mound fragments the polish is mainly upon the pointed portion of the implement, while the portions not used for active work may be almost without smoothing or polish. In the specimens from the caves the polish is almost perfectly even over the whole surface in every case. The evenness of this polish seems to indicate that, if these objects were used as implements, special pains must have been taken to polish those portions which would in the course of ordinary use be left rough. Such smoothing as we see here may perhaps be as readily explained by the action of water as by any other means, the fragments being rubbed on all sides and evenly polished.

In other bone fragments, peculiar perforations and notches have been noted which are not easily explained by the operation of

natural processes, but which could be accounted for by perforation through human agency. Of all the evidence which has been advanced in favor of the influence of man in the production of implement-like objects found in the Shasta caves, the evidence of perforation seems probably the strongest. A serious doubt must exist, however, as to whether the presence of only a few somewhat indefinite perforations in a very small number out of several thousand of these fragments should be considered proof of the presence of man. Had a large percentage of the fragments been formed and used by man, evidence of a more definite character ought to be present in abundance.

While it is probably true that as yet no unequivocal evidence of the agency of man in the fashioning of the bone fragments from this cave has been presented, in all fairness to those who may undertake from the study of such materials to give us something of the earliest history of the human race, we should not forget that, at the very period where the discrimination between artifacts and natural objects is most important it becomes most difficult. In the early stages of the development of man, such implements as were used by him were probably in many cases simply special forms of natural objects which were, in their original form, well adapted to meet his primitive needs. The earliest true artifacts were objects of this class showing only a little modification.

A more detailed discussion of the peculiarly marked bone fragments from the California caves is presented by Professor F. W. Putnam in a paper on this subject appearing also in this number of the *American Anthropologist*.

SAMWEL CAVE

The exploration of the Samwel cave, in the Shasta region, has been carried on by Mr E. L. Furlong through parts of the seasons 1903, 1904, and 1905.¹ This cave is somewhat larger than the one at Potter creek and contains several chambers of considerable size. The largest chamber had not been entered previous to 1903, when it was explored by Mr Furlong and the writer.

¹ The explorations during the season of 1905 were carried on under an appropriation from the Archaeological Institute of America for the "Exploration of Caves in Northern California under the supervision of F. W. Putnam."

Opening into one of the passageways about 100 feet from the entrance is a fissure containing a small alluvial fan, which opens out on the floor of the chamber. This deposit appears to have accumulated through the entrance of material from the upper part of the fissure. The entrance is now closed with a stalagmite growth, and no clue to its position has yet been obtained from the study of the surface of the rock outside. In small pockets on the sides of the fissure, and in the deposit below, there have been found large numbers of bone fragments representing a Quaternary fauna. These include remains of extinct species¹ of *Equus*, *Elephas*, and *Ursus*; also remains of *Eucraterium*,² a recently described sheep-like ungulate found in these caves, and bones of a ground-sloth somewhat similar to forms found in the caves of Brazil.³

The largest chamber of the Samwel cave is at a lower level than the entrance and the fissure deposit. It was entered from above through a long chimney. In this chamber there was found a large deposit of fossil remains, including numerous extinct species. Among these were *Eucraterium*, *Preptoceras*⁴ (another new sheep-like form), and a ground-sloth. It seemed improbable that the remains in this lower chamber had come in through the passage by which we first obtained entrance, and a careful search revealed the presence of an alluvial fan coming in from one side of the cavern. Excavations into this indicated that it reached out toward the surface, and during the last season a passageway was cut through it to an outer grotto on the side of a small cañon near by. The lower chamber was originally reached by a passageway leading from a large shelter cave now represented by the grotto. A part of the roof of the original shelter has broken down, and is represented by several large blocks which have fallen from the cliff above.

In the Samwel cave numerous splintered and polished bone fragments have been obtained, and the problems with relation to man are practically the same as those of Potter Creek cave. In addition to these objects, there was found in the chamber near the fissure de-

¹ See E. L. Furlong in *Science*, n. s., vol. 20, p. 53.

² Sinclair and Furlong, *Univ. Calif. Publ., Geology*, vol. 3, no. 20.

³ Sinclair, *New Mammalia*, op. cit., p. 153.

⁴ E. L. Furlong, *Univ. Calif. Publ., Geology*, vol. 4, no. 8.

posit, a chipped fragment of basaltic lava, which appeared to have come from a point six inches below the surface of the stalagmite. Also in the excavation of the outer grotto of the largest chamber, a chipped obsidian fragment was brought up in the bucket from a depth of eleven feet, at which level bones resembling those of an extinct species have been obtained. In neither case, however, was the chipped fragment actually seen in place, and both must be set aside, for the present, as merely suggesting the presence of man.

STONE MAN CAVE

A third cavern in the Shasta region, which has been partly explored, is the Stone Man cave about one mile northeast of Baird. It was visited by Mr Furlong and the writer in 1903. In one of the uppermost chambers a number of bone fragments were found in the stalagmite. These were, however, too imperfect for specific determination, and the age of the deposit has not been determined. In one of the lower galleries, a portion of a human skeleton was found imbedded in the stalagmite. The greater number of the bones had been removed before our visit, but enough was left to show that a considerable fraction of an inch of stalagmite has accumulated on the skeleton. Mr J. A. Richardson kindly gave us a vertebra which he obtained here when the cave was first explored. It seems to have lost practically all of the organic matter, and the cavities in the bone are largely filled with calcite crystals. In this cave there is unfortunately nothing to fix the age of the skeleton definitely. It might easily be many centuries old, or might have come to its present location at a comparatively recent date, though evidence rather favors a considerable antiquity.

AGE OF THE CAVE DEPOSITS

The faunas of both the Potter Creek and the Samwel cave indicate Quaternary age. As far as is now known, the fauna of Samwel cave contains the larger percentage of recent species and is probably the younger. In addition to this evidence, the situation of the two caverns gives considerable information regarding their relative ages. Potter Creek cave is situated at a height of 800 feet above the level of McCloud river, and just below an ancient terrace level

of the river. The Samwel cave is situated just below a terrace 350 feet above the McCloud. The lowest chamber of this cave opens at a point not more than 200 feet above the river. Both caverns were evidently formed at a time when McCloud river was near the level of the terraces above them. Both received their principal deposits when the river was a short distance below them, and it is evident that the time which has elapsed since the formation of the deposits in Potter Creek cave is much greater than that since the formation of similar beds in the Samwel cave. The evidence of physiography apparently corroborates that obtained from the study of the fauna.

The fauna of Potter Creek cave is considered by Dr Sinclair to represent the middle or later Quaternary. The fauna of Samwel cave is certainly Quaternary, but is evidently later than that of Potter Creek. The age of Potter Creek cave is, according to commonly accepted correlations, not far from that of the earliest deposits containing human remains in Europe. Though a reasonable doubt might arise as to whether man could have reached America as early as the date of the Potter Creek deposits, the age of Samwel cave appears to be within the period of man's existence in the old world.

From the evidence at hand it seems that both Mercer's cave and Stone Man cave were in existence in Quaternary time, and in all probability some of the deposits in both caverns were formed in that period.

UNIVERSITY OF CALIFORNIA,
BERKELEY.

EVIDENCE OF THE WORK OF MAN ON OBJECTS FROM QUATERNARY CAVES IN CALIFORNIA¹

By F. W. PUTNAM

In the investigations of the Quaternary caves of California which have been carried on by the Department of Anthropology of the University of California during the last few years, there have been discovered a considerable number of bone and several stone fragments apparently indicating the work of man. If these specimens are actually the evidence of man's work, it is of the utmost importance to have the facts brought out, as the objects in question have been found associated with a fauna which represents an epoch considerably antedating the end of the Quaternary period, and would indicate human occupancy of this portion of the continent at a very remote period.²

The specimens that seem to exhibit evidence of human handiwork of the Quaternary period include a number of polished and pointed bone fragments in most respects similar to the rougher instruments from the shell-mounds, and several other fragments with perforations of such a character that it seems impossible to explain their presence excepting by the agency of man. With these more definite evidences of man's presence there are found in the same strata large numbers of splintered bones, such as elsewhere form a considerable part of the deposits in caves or in shell-mounds that have served as places of human habitation in prehistoric time.

Another class of objects from the caves, which must be considered in connection with the bone specimens, consists of stone fragments exhibiting the undoubted work of man and showing some evidence of having been buried in strata containing the remains of extinct animals.

¹ Read at the meeting of the American Anthropological Association, San Francisco, August 29, 1905.

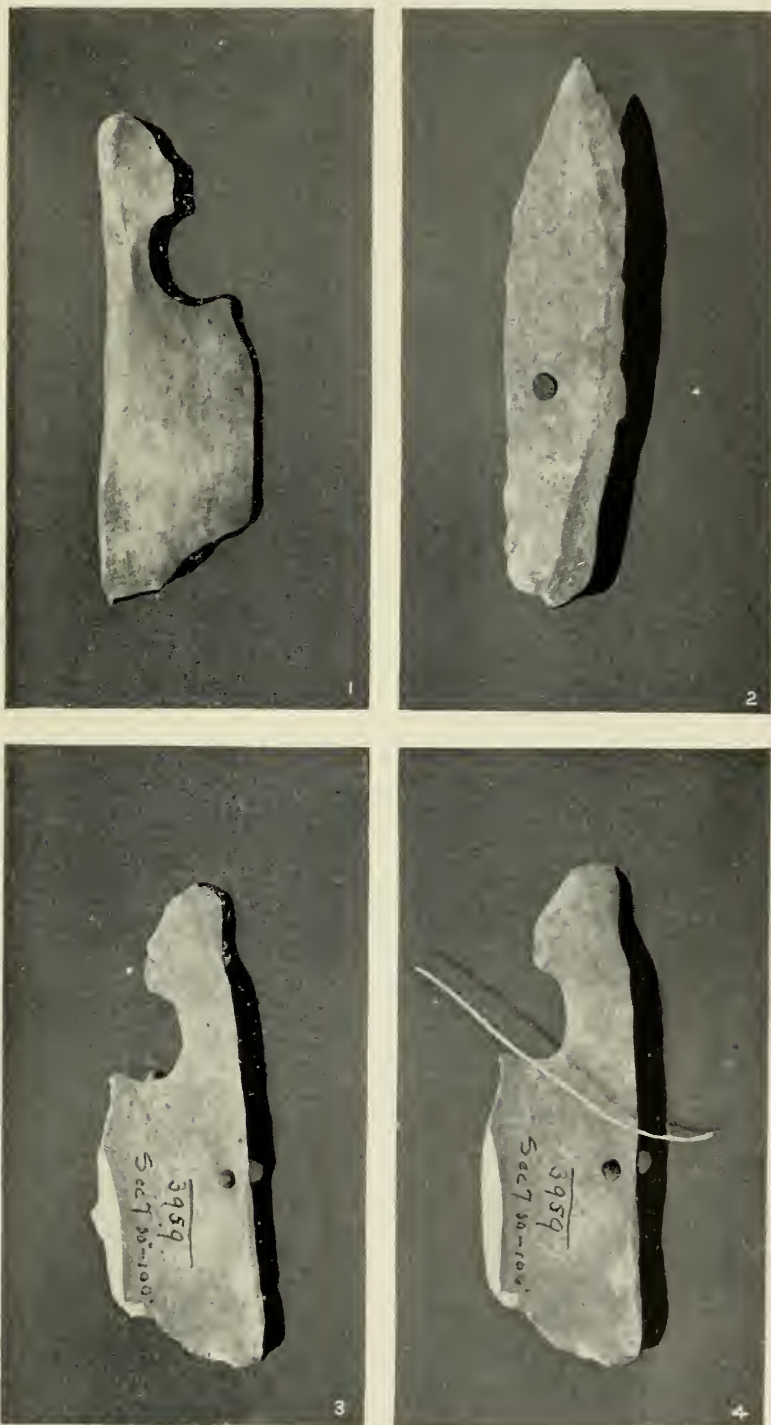
² For a description of these caves and a discussion of their geological age, see the preceding paper by Dr J. C. Merriam.

Of the first class of objects three are figured by Dr Sinclair in his paper on the exploration of Potter Creek cave.¹ Two figures of one of these bones are reproduced here (pl. xvii, figs. 1, 2). This specimen (no. 3894) exhibits quite remarkable oblique beveled edges. The inner side of the specimen shows this very clearly, while the sharp edge produced is shown in the outer view. It is difficult to understand how, by any natural process, beveling and smoothing of this character could have been produced, working from two edges to a terminal point. Moreover, the beveling extends from the softer inner portion of the bone to the denser outer layers, producing the sharp edge where it is most useful. At the end opposite to the beveled portion of this specimen is a distinct notch, quite different from the ordinary reëntrant angles in flaked or broken bone. Its appearance on the same fragment with the extraordinary bevel-edge point, giving evidence of the action of two quite different influences on the bone, makes both the beveled end and the notch appear all the more remarkable.²

Of the fragments showing perforations there are two that have been made the subject of special study. The first of these, no. 3959 (pl. xv, figs. 1-4; pl. xvi, figs. 3, 4), is a thick fragment of bone showing several notches or perforations that do not appear to have been formed in any natural way. It was found by Mr Sinclair between 70 and 80 inches below the surface in section 7 of the deposits in Potter Creek cave. Possible explanations of the occurrence of the foramina in this specimen are that they are natural; that they have been formed by the gnawing of rodents or the boring of insects; or that they have been produced by heavy, angular bodies falling upon them, the rough edges afterward being smoothed by water action. In order to test these suggestions as carefully as possible, every effort has been made to determine the particular bone

¹ *University of California Publications, American Archaeology and Ethnology*, vol. 2, no. 1.

² The plate in Mr Sinclair's paper contains for comparison the figures of two unquestionable bone implements from the ancient shell-heap at Emeryville, and any one familiar with the pointed and cutting implements made of splinters of bone, which are so abundant in shell-heaps and other accumulations of human debris, will readily accept these pointed and perforated bone splinters from the caves as implements of the same character.



BONE FRAGMENT FROM POTTER CREEK CAVE

(Department of Anthropology, University of California, No. 3959. Natural size)

1, Outer surface, showing semicircular notch near the pointed end. 2, Outer surface, left side, showing circular perforation and probable cutting at ends. 3, 4, Inner surface. (In figure 4 the bristle passes through the small hole at the edge of the bone.)

or part of bone which this fragment represents. After having passed through the hands of Mr Sinclair, who did not reach a definite conclusion as to its character, the specimen was examined by a number of eminent comparative anatomists, including Dr G. H. Parker, Dr W. D. Mathews, Mr J. W. Gidley, Mr F. A. Lucas, Dr A. Hrdlička, and Dr F. W. True, all of whom agree that the perforations are not natural. Messrs Mathews and Gidley have kindly expressed their opinion in the following statement :

“Specimen (no. 3959) from Pleistocene cave deposit of Potter creek, California, submitted for examination by Professor Putnam.

“The specimen is a fragment of a shaft of a limb-bone of some mammal. It is too much worn and uncharacteristic for positive identification, but appears to be part of the humerus of a ruminant, probably from the external side near the distal end of the shaft, and compares most nearly with *Ovibos*. It is pierced by a complete circular hole and deeply notched by a much larger oval hole of which the outer side is broken away. These are not like the natural foramina of bones in the appearance of their edges, nor is there any possible identification of the fragment in question which would give them the position and size of naturally occurring foramina.

“They are not the work of water acting by solution, as shown by the uniform diameter and regularly circular form of the smaller one, and the beveled, not rounded, edges of the larger one.

“They are not the work of insects or of boring molluscs, as is proved by the slight beveling of the external and rounding of the internal margin of the smaller hole, and by the strong and irregular beveling of the larger one, as well as by other features of position, direction, etc.

“They are not the work of rodents: this explanation is out of the question for the smaller hole, and must be rejected for the larger one from the absence of any marks of gnawing teeth around the margin of the hole, its form, the thickness of the bone at the part pierced, and other considerations. Parts of the edges of the fragment bear the marks of gnawing teeth very clearly defined; this gnawing must have occurred after the fragment was broken to its present form, while the larger hole was made when it was more complete than it now is.

“These holes could not have been punctured by the teeth of carnivora, the beveling of the edges of the larger hole, and the small size and uniform diameter of the smaller one forbidding it.

“The only alternative of which we can conceive, and in our view the

only possible explanation of these holes is that they are the work of man. The end of the fragment has also two or more slight notches, the margin of which is like that of the incomplete hole mentioned. These also are probably of artificial origin and can hardly be explained by natural splintering of the bone, or as the work of carnivora or rodents.

"We therefore endorse without question Professor Putnam's view that this bone certainly shows the handiwork of man, and we take pleasure in expressing our acknowledgments for the privilege of examining it.

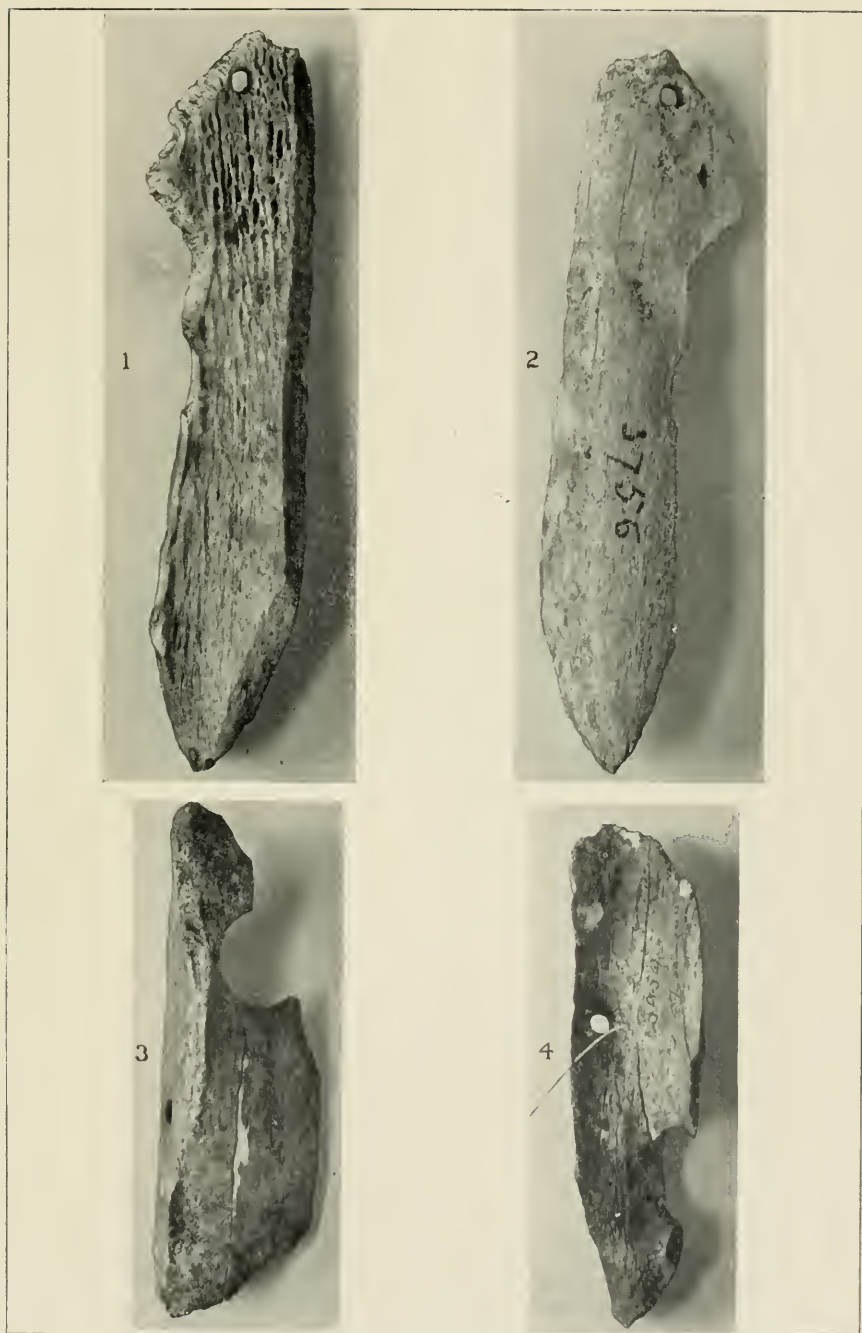
[Signed] "W. D. MATTHEW, J. W. GIDLEY.

"AMERICAN MUSEUM OF NATURAL HISTORY,
February second, 1905."

As the musk-ox is unknown in the Shasta cave fauna it is not probable that this specimen represents a bone of one of these animals. There were, however, in these caves abundant remains of the new genus *Euceratherium*, a large sheep-like animal related to the musk-ox and possessing bones quite similar in form and size. *Euceratherium* was one of the more common ungulates at the period when the cave deposit was forming and would have served as one of the principal food supplies for early man if he were living in this region at the time. The form of this fragment agrees as closely with that of the distal end of the humerus of *Euceratherium* as it does with that of *Ovibos*, and there is good reason for believing that it represents that bone. In the humerus of *Euceratherium* the foramina are similar to those in *Ovibos*, and there are no natural openings that correspond to the perforations seen here.

The smaller completely enclosed perforation in the specimen (pl. xv, figs. 2, 3, 4; pl. xvi, fig. 4) is almost circular in outline, is nearly normal to the surface of the bone, and is slightly beveled on the margins. The cutting of the hole and the beveling are not accompanied by much cutting of the natural canals of the bone, but the form and direction of the holes are not comparable with those of ordinary natural foramina.

Close to the smaller perforation is an exceedingly small opening, about half a millimeter in diameter, indicated in the illustrations (pl. xv, fig. 4; pl. xvi, fig. 4) by a bristle. It may represent a natural foramen or it may be artificial; it is difficult to determine its true nature.



BONE FRAGMENTS FROM POTTER CREEK CAVE

(Department of Anthropology, University of California. Natural size)

- 1, Inner side of splintered fragment (in the upper end there is a nearly circular perforation); No. 3756.
2, Outer side of the same fragment. 3, Another view of specimen 3756, shown in Plate xv. 4, Inner view of the same.

The second specimen, no. 3756 (pl. xvi, figs. 1, 2), represents a large fragment splintered from a heavy limb bone. It was obtained 40-50 inches below the surface in section 6 of the Potter Creek cave. One end is pointed and somewhat beveled by splintering, the other is slightly worn and has been much gnawed by rodents. In the rough end of the fragment is a nearly circular hole, about 3 mm. in diameter, cutting the bone along a line nearly normal to its outer surface. The hole is quite sharply cut, and the edges, both at the outer and the inner ends of the aperture are very little worn. Viewed from the inner side by means of a hand lens one can see that the coarser canals of the bone are distinctly cut across by this perforation. Although I am not able to determine with certainty the bone from which this fragment came, it is probably a splinter of a leg bone of one of the large ungulates. The opening appears quite different from a natural foramen, as the edges are sharp and the canals of the bone are crossed in an unnatural manner. The course of the opening, moreover, is transverse to the axis of the bone, whereas most foramina in bones of this character enter at an angle of less than 90 degrees.

It should be noted in connection with the study of this specimen that the end in which the perforation occurs is somewhat worn and that the opposite end is splintered in such a way as to form a natural bevel on both sides, coming to a point somewhat as in specimen no. 3894 described above. While I do not wish to assert positively that this opening was made by the hand of man, I cannot conceive of any natural way in which such a perforation could be produced, and certainly the present evidence points to man as the active agent in its production.

The polished and perforated specimens mentioned above are found in association with a large number of splintered bone fragments derived largely from the breaking up of long-bones of large ungulates. Of these there are many hundreds of specimens occurring in nearly all layers of the deposits. On only a few of the splinters are there marks such as would be made by the teeth of carnivora in crushing the bones. In the absence of definite evidence of the fracture of these bones by large carnivora, one is forced to suspect that man has been the active agent here as in the shell-

mounds, where the numerous fractured and splintered bones are unanimously attributed to the work of man.

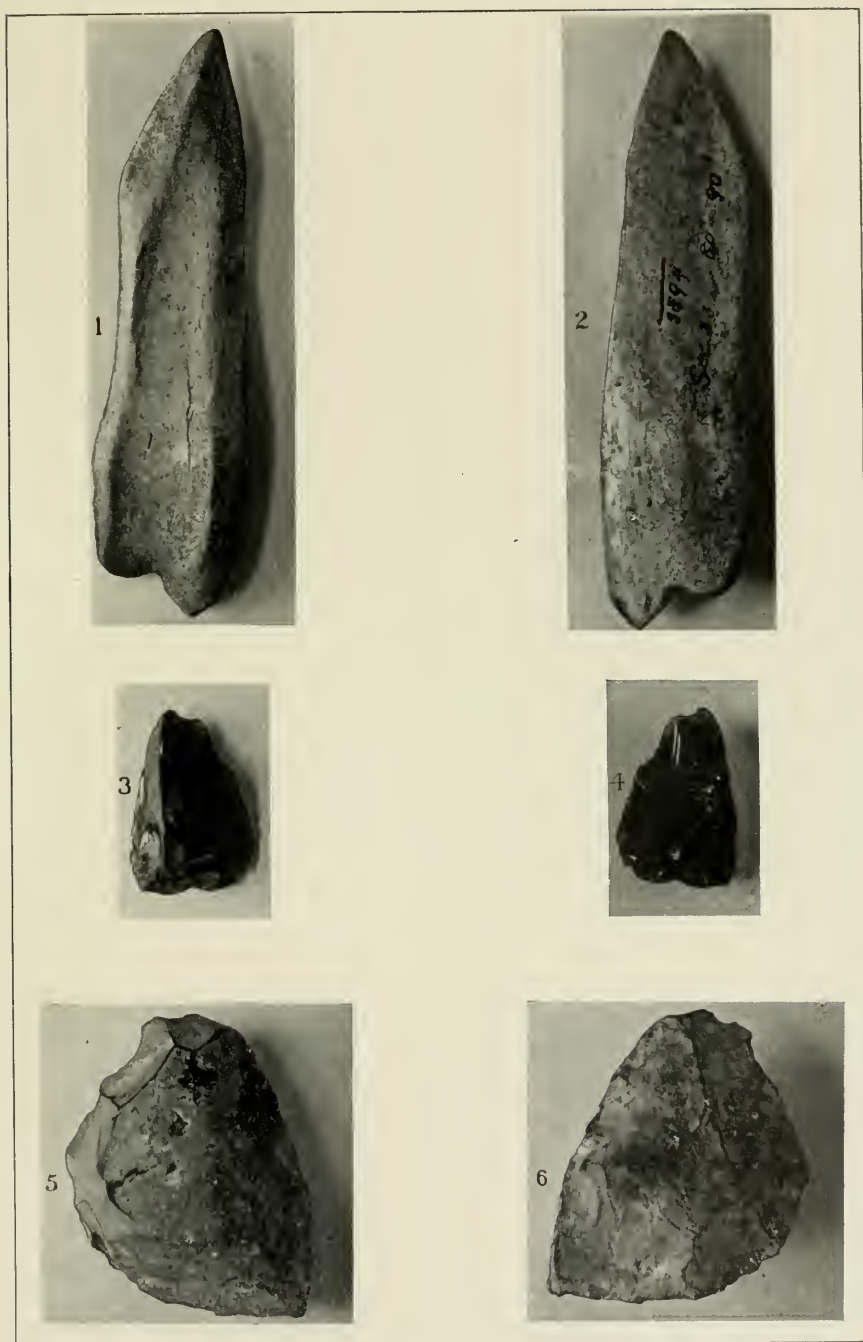
Of the stone fragments mentioned above as occurring in these cave deposits, two were found in Samwel cave. In these two specimens there is no doubt of the handiwork of man. The first specimen, no. 10012 (pl. xvii, figs. 5, 6), was obtained by Mr E. L. Furlong, in 1904, in the fissure deposit of the upper chamber of Samwel cave. It was found six inches beneath the loosened stalagmite layer after a blast to break up the dense rock. The specimen is a distinctly chipped basalt fragment. It seemed to belong to the loosened earth in which it was found. Its surface is partially covered with a thin calcareous coating. In and on the stalagmite above it numerous remains of extinct animals were obtained.

The second specimen,¹ no. 10011 (pl. xvii, figs. 3, 4), is a distinctly chipped obsidian flake obtained from a shaft sunk into the deposits filling the old entrance of the large lower chamber of Samwel cave. This specimen was not seen in place, but was brought up in a bucket filled with moist earth from the bottom of the shaft, then eleven feet deep. The earth around the mouth of the shaft was quite dry, and if the fragment did not come from the layers below, it must have fallen into the shaft in the course of the workings and have been buried in the moist earth below. The surface of the specimen was partly covered with a thin calcareous incrustation. The layer exposed at the bottom of the pit at this time underlies strata containing remains of an extinct ground-sloth.

While we cannot state definitely that either of the stone fragments actually occurred in the Quaternary deposits, there is at least strong presumptive evidence in favor of their having been derived from these beds, and that they were the work of men existing in this region before the Quaternary fauna became extinct.

In concluding this brief statement relating to the supposed evidence of man's handiwork in the Shasta caves, it seems to me that the two perforated bones here illustrated are sufficiently important to warrant the belief that man inhabited the vicinity of the caves at least as early as the latter half of the Quaternary period. At all

¹This specimen was obtained in the summer of 1905, during the progress of the work carried on under an appropriation by the Archaeological Institute of America.



BONE AND STONE FRAGMENTS FROM POTTER CREEK AND SAMUEL CAVES
 (Department of Anthropology, University of California. Natural size)

1, Inner side of polished bone fragment from Potter Creek cave (No. 3894). The upper end is beveled at both edges. A shallow notch is seen at the lower end. 2, Outer side of the same. 3, 4, Opposite sides of a chipped obsidian flake from Samuel cave (No. 10011). 5, 6, Opposite sides of a chipped basalt fragment from Samuel cave (No. 10012).

events, until it is proved that the perforations and the beveling of the points on some of these bone splinters were made without man's agency, archeologists will, I think, accept the specimens here described as primitive forms of bone implements.

The fact that only a few pointed bones with perforations were found is in conformity with our experience in the explorations of shell-heaps and village sites, where hundreds of simple pointed implements made from splinters of bone have been found, but seldom one with a perforation.

The very large number of splinters of long-bones of various mammals, found in the caves, is of importance in this investigation, since they are of the same character as splinters of marrow-bones that are found on so many ancient sites of man's occupancy. The very small number of splinters showing marks of the teeth of carnivora, and the difficulty of accounting for such large numbers of bone splinters otherwise than by man's agency, should also be given due consideration.

The exploration of other caves in this vicinity will probably bring to light much of importance in relation to early man in California. It is with pleasure that I acknowledge my great indebtedness to Dr J. C. Merriam for his hearty coöperation in these explorations, in which his knowledge of geology and paleontology has been of the first importance, as shown by his exceedingly conservative paper on this subject, in which he gives a general review of the researches that have thus far been carried on by the University of California.

DEPARTMENT OF ANTHROPOLOGY,
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NOTE ON THE DETERMINATION OF SEX IN MAN

By E. T. BREWSTER

Dr John Benjamin Nichols, in a paper recently printed in this journal,¹ sets forth conclusions practically identical with those to which I had come, quite independently, by the same method. He finds, in effect, that in three thousand New England families having six children or more, the actual distribution of sons and daughters is very nearly identical with the theoretical chance distribution. There is nevertheless a slight tendency toward an excess of families in which the children are all of the same sex, and also a somewhat disproportionate number of boys in the largest families. Dr Nichols therefore concludes that sex is entirely independent of environment, but is determined by the dominance of one or the other of the hereditary impulses derived from the two parents. The sex-making forces fight it out in the germ, and in the long run one is about as likely to be prepotent as the other. The slight departures from theory he would explain by the occasional ascendancy of one parent over the other.

Dismissing for the present all questions of interpretation, I shall set forth certain facts in regard to these departures from the theoretical chance distribution.

First of all I turn to the magnitude of the disagreement with chance. Of 1,200 children of known sex, 601 were followed at the next birth by a child of the same sex as themselves, 599 by one of the other sex. This is clearly chance and far within the error of random sampling. Suppose, however, in place of random we take selected cases, a method which in studies of this sort has not been generally employed. In 1,442 cases in which two consecutive children were of the same sex, I find that in 727 a run of two boys or two girls is followed by another of the same sex, and by one of a different sex in 715. Table A shows the results of applying the same method to runs of three, four, five, six, seven, and eight chil-

¹ Vol. VII, No. 1, 1905, pp. 24-36.

dren of like sex in two groups of related families. Throwing out the last case, in which the numbers are too small to have much value, in all cases except one, if two or more consecutive children are of like sex the next stands an appreciably better than average chance of being of that sex also. On the whole this tendency tends to increase with the length of the run. At any rate the final sum, 1,210 of one sort to 1,154 of the other, is significant of the operation of some real cause. Sex, then, is nearly a matter of chance, yet there are special cases in which some sex-determining tendency is also at work, so that a sporting neighbor of the Patriarch Jacob, after the birth of the eleventh consecutive son, might reasonably risk a wager of three to two that number twelve would be a boy also.

TABLE A
SEX OF CHILD AFTER A SUCCESSION OF CHILDREN OF THE SAME SEX

No. Children Alike.		2		3		4		5		6		7		8		Sum.	
Family.		Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.	Next is Like.	Next is Unlike.
T*****	{ like.	314		119		44		13		7		3		1		501	
	{ dif.		311		117		43		10		4		2		1		488
F*****	{ like.	413		169		70		35		16		6		0		709	
	{ dif.		404		173		54		17		11		4		3		666
Sum.....	{ like.	727		288		114		48		23		9		1		1210	
	{ dif.		715		290		97		27		14		6		4		1154
																2364	
Observed ratio like/dif.....		1.02		.99		1.18		1.78		1.64		1.5		.25		1.05	
Calculated ratio sexes equal.....		1.00		1.00												1.00	
Calculated ratio 11 ♂ equal 10 ♀.		1.01+		1.02—		1.02		1.02+		1.0295		1.034		1.038			

I shall now set forth evidence to show that a tendency to depart from the chance distribution of sex in the direction of an excess of boys or girls is correlated with the age of the mother.

My data consist of the published genealogies of eight New England families whose records go back to the early days of the country and come down to the middle of the last century when the number of children to each marriage becomes too small for my purpose. Table B shows the distribution of sex among the first three births and the last three in some fourteen hundred families in which

there were six children or more. From this table it appears that there is a pretty well-marked tendency for mothers to bear boys early in life and girls later. Twenty-three hundred women had among their first three children 3,756 boys and 3,285 girls. The same women had among their last three births 3,594 boys and 3,432 girls. In other words, a group of young women bear 114 boys to each 100 girls: the very same women when along in years bear only 105 boys to each 100 girls. Moreover, taking each of the eight family stocks separately, there is no case in which the number of boys among the last three births exceeds that among the first three. On the other hand, there is but one of the eight in which the number of girls in the first three exceeds that in the last three. Clearly, therefore, there is a correlation between the age of mothers and the sex of the offspring.

TABLE B

SEX OF FIRST THREE AND LAST THREE CHILDREN IN FAMILIES OF SIX OR MORE

Families.	3 Boys.		2 Boys. 1 Girl.		1 Boy. 2 Girls.		3 Girls.		Total Boys.		Total Girls.		Ratio Boys.Girls.		Mean Ratio.
1. F***** { first 3.	41	128	101		33	480	429	1.12	1.025						
{ last 3.	32	118	104		48	436	470	.93							
2. T***** { first 3.	45	85	85		26	390	333	1.17	1.09						
{ last 3.	28	97	88		30	366	363	1.01							
3. R*****.....	53	94	89		31	436	365	1.20	1.09						
4. W*****.....	37	35	92	101	35	390	399	.98							
5. F*****.....	30	58	58		17	285	225	1.27	1.16						
6. D*****.....	19	30	56	56	26	258	246	1.05							
7. P*****.....	20	72	48		22	249	234	1.06	1.045						
8. K*****.....	30	20	63	56	20	242	235	1.03							
9. Sum.....	30	114	93		30	411	390	1.06	1.06						
10. Sum calculated	24	42	90	105	29	411	387	1.06							
if 11 ♂ to 10 ♀...	26	55	38		16	220	179	1.23	1.23						
	118	334	263	46	13	220	179	1.14	1.12						
	133	285	302	90	88	1271	1153	1.10							
	367	940	775	265	3756	3285	1.14	1.05	1.095						
	346	849	856	289	3594	3432									
	337	919	836	253											

The correlation need not, however, be direct. In fact the more obvious supposition is that the correlation is primarily with bodily vigor and only incidentally with age. I shall now submit evidence on this point.

Presumably women who bear more than five children are a selected class appreciably more vigorous than the general body of

wives. They should therefore bear a somewhat larger proportion of boys. As a matter of fact, averaging the first three and the last three births, they produce boys and girls in the ratio of 110 to 100; while a random sample of mothers, including this selected class, shows a ratio of only 1.07. This agrees perfectly with the long known fact that there is a preponderance of boys among the first births; and that, according to Dr Nichols, large families contain a disproportionate number of boys and the families of consumptive mothers an excess of girls.

At first sight it would seem easy to test the matter still further by studying the proportion of boys and girls in families of fewer than six children. Unfortunately the apparently small family of a genealogy may be merely one whose members have in part escaped the notice of the compiler; and since the latter is somewhat more likely to overlook girls than boys, the desired ratio is likely to come out higher than it should. Moreover, especially as one comes down toward recent times, families of fewer than six children become practically identical with the general unselected population.

It is, however, possible to select one group of women who are clearly less vigorous of body than their sisters — those, namely, whose husbands marry again. In general the woman whose husband has had children by a second or third wife has died young and is therefore likely to be the sort of woman who should, according to our present theory, bear proportionately fewer boys than average mothers. My numbers are unfortunately small. I find, however, in this class 64 boys and 63 girls; and this, so far as it goes, bears out the theory.

TABLE C

SEX OF CHILDREN OF FIRST, SECOND, AND THIRD WIVES

	First Wife.	Second Wife.	Third Wife.	Second and Third.
♂	64	113	6	119
♀	63	86	2	88
Ratio ♂/♀	1.02	1.31		1.35

There is, moreover, another curious fact (Table C) concerning the children of men who marry more than once. The second wife not only has more children than the first (199 to 127); she also bears a far larger proportion of boys. Second wives, in the families

which I am discussing, have 113 boys and only 86 girls — a ratio of 132 to 100. Third wives have 6 and 2. Now, second wives are presumably, as a whole, somewhat older than first wives; why then do they not bear fewer boys instead of more? The reason I take to be this. The thrifty New Englander, even in his first matrimonial venture, was apt to select his wife with something of an eye to her economic value; how much more then did he at his second attempt choose a woman of vigorous constitution. Men marrying a second time are therefore a selected group which may fairly be assumed to rate bodily stamina somewhat higher as an element in conjugal choice than do less experienced persons. Moreover, the second-wife class may fairly be taken to include an unusual proportion of widows. Now widows, since they are women who have survived their husbands, should be a selected body of unusually vigorous persons. But remarried widows are in addition a selection from this selected group. They are women who have come through the trials of their first venture with enough strength, health, and good looks to render them eligible for a second. First wives and second wives therefore are two special classes — the one more, the other less vigorous than the general run of their contemporaries. Hence the one produces a smaller, the other a larger proportion of boys than the average. All this tends to show that the observed correlation is between sex of offspring and vigor rather than between sex of offspring and age; and this is *a priori* the more probable supposition.

Turning now from the facts to their interpretation, we shall find, I think, that the observed correlation between sex of offspring and age, or vigor, of mothers may be, in part, independent of any initial sex-producing tendency, but is, on the contrary, caused by a higher death rate among fetal and infant boys. There are, for example,¹ 135-140 still-born boys to each 100 girls. Moreover it appears from the records of one Dublin hospital that 1 girl and 16 boys died within half an hour of birth; at the end of the first hour the numbers had become 2 and 19; and after six hours, 7 and 29. It is well known that while boys outnumber girls at birth, occasionally by as many as 130 to 100, they tend to die off so much faster

¹ Havelock Ellis, *Man and Woman*, p. 432.

that they usually soon drop behind in absolute numbers. It is not known, apparently, what the comparative death-rate of the two sexes is among young embryos. If then, given an initial excess of boys, we suppose that boys, since they are larger than girls, are more tax upon their mothers so that the older and less vigorous women lose more of them, while the younger and more vigorous mothers lose fewer, the observed distribution of sex in families is, in part, accounted for.

Nevertheless, this explanation alone is apparently not sufficient. The change in the ratio of boys to girls from 114 to 105, as shown in Table B, is more than can reasonably be attributed to this cause alone. Moreover, the ninth and tenth lines of Table B show that in both groups of births the number of unmixed families, both of boys and of girls, is in excess of the number due to chance. This could hardly be the case if the cause involved were one which operates on the boys alone. Nor is this explanation sufficient to account entirely for the runs in Table A. Notwithstanding this, if we knew, as we do not, anything about the reasons why ova and very young embryos fail to give rise to living infants, it might very well appear that the two sexes are in this respect, as in most others, by no means on a level. Causes of the same general order as those which take off more boys in infancy, more women in early adult life, and more men in old age, which destroy more women by phthisis and more men by apoplexy, might conceivably operate from the beginning and, the sexes being originally equal in numbers, cause just the distribution which actually appears.

After all, the significant thing about the distribution of sex is that it is so nearly in accord with chance. Only by supposing a chance distribution somewhat modified by some variable cause acting within small limits can we avoid the difficulties inherent in all theories which involve the idea of "prepotency," and assign to the same cause the general law and the departures from it.

Summary

1. Sex in man is nearly but not quite a matter of chance.
2. In large families and among the first three births in families of six children or more the proportion of boys is more than average.

3. This is probably due to the greater vigor of the mothers.
4. This excess of boys is not entirely due to "prepotency" but at least in part to the fact that these mothers lose fewer boys than average women.
5. The same principle might conceivably be extended to explain all departures from chance distribution.

ANDOVER,
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NORTH AMERICAN ETHNOGRAPHICAL MATERIAL IN ITALIAN COLLECTIONS

By DAVID I. BUSHNELL, JR

Considering the scarcity of early American ethnological material, and realizing how comparatively small are the collections of old objects of a perishable nature in American museums, it is with a feeling of pleasure and satisfaction that such things are met with in the older institutions in Europe. Brought here as curiosities by the explorer, the missionary, or the trader, at an early day—in many cases when the greater portion of the continent was yet held and occupied by the native tribes—various articles reached different collections where they were cared for and preserved, others were hidden away only to come to light by chance at this late day, as was the case with the two Mexican atlats now in the Florence Museum.¹ Probably there are yet other specimens, of equal interest and value, that may be revealed at some future time.

The museums in Florence and Rome possess very rare and valuable ethnological specimens from North America. Some of these are of historic interest, especially the specimens from Mexico which appear to have been part of the collection sent to Spain by Cortés. But, as is the case in some of the older institutions, the collections mentioned are very incomplete, and regarding a number of the specimens nothing definite is known; consequently we can say only approximately where many objects were collected.

As I have already described the two atlats in the Anthropological Museum in Florence, above referred to, the first part of this article will be devoted to a consideration of the other rare Mexican objects in the several Italian collections.

The ancient Aztec atlatl in the Kircheriano Museum in Rome is similar to those in Florence, being made of the same kind of wood, which is heavy and dark, resembling rosewood; but it is not

¹ See *American Anthropologist*, 1905, VII, 218.

so well preserved and the gold has been rubbed and worn away from much of the carved surface.¹ The carving is in very low relief, similar to the larger of the Florence specimens. The decoration on the back is not divided into sections by transverse lines or ridges, but is composed of a single continuous group of figures and symbols closely connected.

The dimensions² of this, which may be termed Specimen C (pl. xviii), are :

Length	565 mm.
Width { at upper end	39 "
{ at end of carving	29 "
{ at lower end	20 "
Length of carved surface	360 "
Length of hook	64 "
Length of groove	501 "
Width of groove { at base of hook	7.5 "
{ at lower end	4 "

The front of this specimen is more elaborately carved than either of the specimens in Florence. The hook is more massive and is carved in the form of a human head surmounted by a large head-dress. Down each side of the groove are five human figures, standing, and facing inward.

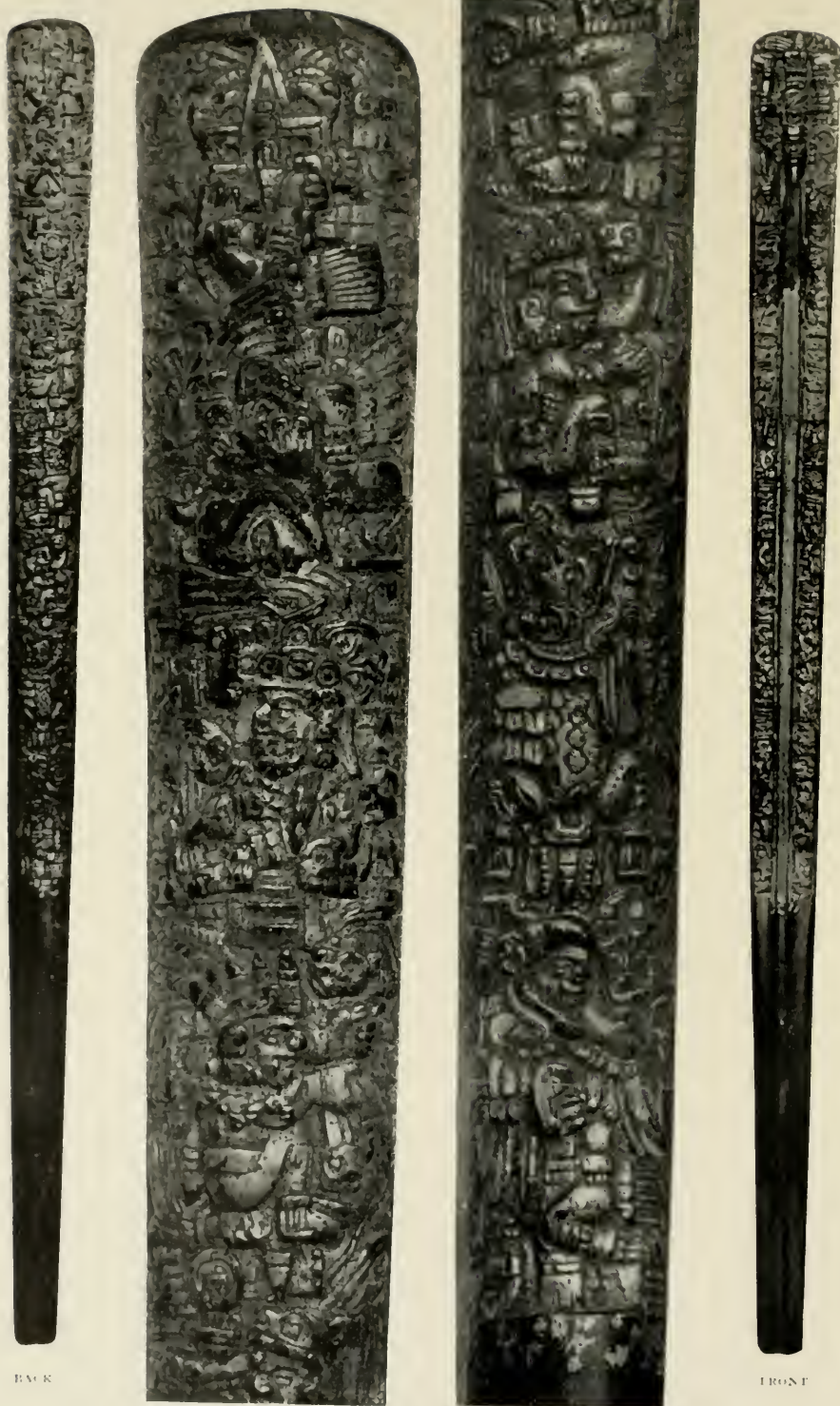
The great similarity of the three atlats will be apparent to all who may compare the plates. All were undoubtedly ceremonial objects, as no actual weapon would have been so elaborately decorated and covered with gold.

In addition to the two atlats there are four other objects in Florence, which probably belonged in the first instance to the Cortés collection, one being an alabaster mask preserved in the Gem room of the Uffizi gallery, a small jade figure and an obsidian mirror in Professor Giglioli's collection, and the Codex in the Biblioteca Nazionale.

The mask (pl. xix, *a*) is formed of a very beautiful piece of alabaster, light green in color. The greatest width is 155 mm.;

¹ When the two Florence specimens were obtained by Professor Mantegazza, they were in an old leather-covered case in which they had evidently been kept for many years. This may account for their more perfect state of preservation.

² It will be seen that these figures differ slightly from those given by Mrs Nuttall in her paper, "Atlatl or Spear-thrower," published by the Peabody Museum in 1891.



ANCIENT MEXICAN ATLATL IN THE KIRCHERIANO MUSEUM, ROME. (Full size.)

the length, 160 mm. Originally there was a projection on each side ; the one on the left has been broken, but the one on the right is perfect. There are two similar ridges on the back. All are perforated, and the perforations are worn, showing the effect of the cords which were used in fastening the mask. Unfortunately the eyes are not the original ones ; they are made of glass but appear to be very old. There is also some question as to the age of the painting in the mouth ; very little of it is visible, and it was evidently done many years ago. However, even with these retouches, if such they really are, the mask is very interesting historically, and for that reason, if for no other, is worthy of illustration here.

The jade figurine in Professor Giglioli's collection (pl. XIX, *b*, *c*) is 55 mm. high. The color is dark, mottled green. About the year 1650 this object was in the collection of Cardinal Guadagni in Florence. Its history before that time is not known, but it probably belonged to the same collection as the other objects from Mexico.

The Kircheriano Museum in Rome is fortunate in possessing, in addition to the one atlatl, five specimens of great rarity, from Mexico. These are incrustated objects consisting of two masks, two knife-handles (unfortunately the blades are missing), and a human femur formed into a musical instrument. They have already been described and figured by Professor Pigorini.¹ These, together with the three atlatls, the mask in the Uffizi, the figurine and mirror in Professor Giglioli's collection, and the two codices—one the Codex Bоргiana, now in the Vatican ; the other preserved in the Biblioteca Nazionale in Florence—both of which have been reproduced, probably once belonged to the famous collection of the Medicis. No other objects of Mexican origin belonging to that collection are now known to be in Italy, but it is not impossible that others may be hidden away, to be revealed from time to time.

In the paper to which I have referred, Professor Pigorini traces fourteen other examples of incrustated objects of Aztec origin which are now the property of different European collections. These include seven in the Christy collection in the British Museum ; one in a

¹ Luigi Pigorini, "Gli antichi oggetti messicani incrostatati di mosaico esistenti nel Museo preistorico ed etnografico di Roma," *Memorie R. Accad. dei Lincei*, ser. III, vol. XII, pp. 336-342, Roma, 1885.

private collection in England; two in the Ethnographical Museum in Copenhagen; three in the Ethnographical Museum in Berlin; and one said to be in Gotha. With the five pieces in Rome there are thus nineteen known specimens in various parts of Europe; but many, if not all, were at one time in Florence.

The best-preserved and most interesting of the specimens in Rome is a mask representing a human face. The entire length is 280 mm. and the width is about 135 mm., approximately life size. The inner surface is plain, while the outside is covered with mosaic, which for the greater part is of turquoise outlined with pearl. Professor Pigorini¹ has been able to trace the history of this most interesting piece for more than three and a half centuries, finding this entry in the *Inventario della Guardaroba Medicea*, 1553: *Una maschera Venuta d'India composta di turchine sopra il legno*. This is the first of a series of references to the same mask made in different lists.

The art here illustrated as practised by the ancient Mexicans is another link connecting the culture of that people and of the earlier pueblo-dwellers of New Mexico and Arizona. In no other part of North America is the art known to have been followed; in both the regions indicated turquoise was the principal material of which the mosaic was formed, and although the incrustated objects from the two localities are very different in form, there is a similarity in the workmanship that suggests a connection between the ancient peoples.

Of special interest is a small collection from the northwest coast of America, now in the Anthropological Museum in Florence. It includes thirty-four pieces, all of which were collected by Captain Cook during his third voyage, in the year 1778. This collection has already been described and many of its objects figured by Professor Giglioli.²

Of the thirty-four specimens, twenty-three were obtained in the vicinity of Nootka and include garments, ornaments, weapons, and

¹Op. cit., p. 338.

²E. H. Giglioli, "Appunti intorno ad una collezione Etnografica fatta durante il terzo viaggio di Cook," *Archivio per l'Ant. e la Etnol.*, vol. XXV, pp. 120-161, Firenze, 1895.



Aztec Mask in the Uffizi Gallery, Florence. ($\frac{1}{2}$)



Front (*b*) and side (*c*) views of a jade figure in Professor Gaglioli's collection. (Exact size.)

ceremonial objects, for the greater part in a good state of preservation. Four hats in this portion of the collection are of interest, as they are probably the specimens which were figured in the account of the voyage. Two are conical in form, terminating in a point; on each are represented four large whales and many canoes. The others are smaller and lower, having flat crowns and being decorated with a symbolic design painted in red, blue, and black.

Two capes made of narrow strips of cedar bark, braided, and continuing as a fringe at the bottom; a bracelet made of horn, and two wooden combs, highly decorated and well preserved, were collected at Nootka. Other specimens from the same locality are several harpoon points; a bow 1,135 mm. in length; and a wooden mask representing a human face, skilfully made. Two very fine examples of the bone club, both well decorated with characteristic carving and in an excellent state of preservation, belong to the same collection. The remaining eleven objects forming the Cook collection consist of harpoons and smaller weapons from Prince William sound, Norton sound, and Unalaska. Considered historically this collection possesses great value in addition to the rarity and interest of the specimens.

There are a few very interesting objects from the same part of North America, preserved in the Kircheriano Museum in Rome.

Professor Giglioli's collection of material from the northwestern part of North America is very rich and complete, and includes a large series of hafted implements and weapons from Vancouver island and northward. The most interesting of these are to be figured in a work descriptive of the entire collection which he has now in preparation.

The greater portion of the collections from North America belonging to the Italian museums consists of specimens from the central and eastern sections of the continent, representing the work of the Sioux, the Algonquians, and the Iroquois. Certainly there are a number of very interesting objects in the various collections. Some bear a date, or a few words of an old inscription which offer a clue to their history; but in the great majority of cases there is absolutely nothing known of the pieces—no records of when or

where they were obtained. This is to be regretted, as many may have an interesting history which can never be known.

Among the specimens in the Anthropological Museum in Florence are two pairs of moccasins and a knife-sheath, all being the work of eastern tribes. These were acquired by the museum in 1828. They are interesting old pieces, such as are very rare in American collections.

Of the two pairs of moccasins (pl. xx, *a*), one appears to be quite old and dates probably from the latter part of the eighteenth century. Along each side of the top, or opening, is a piece of buckskin, 140 mm. in length and 60 mm. in width, covered for a distance of 40 mm. from the top by a band of porcupine quillwork dyed red. This band is composed of four narrow rows, the whole being surrounded first by a single row of twisted quills dyed yellow, then by a narrow band of quills colored red and white. To the lower end of the latter are attached tufts of moose hair, also dyed red, each tuft being covered for a distance of 15 mm. with a thin metal band, between which and the edge of the buckskin is a knot of red quills. Three narrow rows of quills extend down the back seam and also down the top from the opening to the end. Tufts of hair similarly dyed and partly covered with metal are attached to the end of the band above mentioned. The upper half of the quillwork on the front is bordered on each side by a single row of eight wampum beads, alternating purple and white. Attached to the lower ends of the rows of beads are tufts of hair, similarly dyed and covered. From the point of attachment a narrow line of quills runs off at an angle; at the end of this line is one white wampum bead. The moccasins were originally red, as were the hair and the greater portion of the quill work. On each of the side bands, however, there are two diagonal lines, each formed of six folds of quills, two white, two purple, and again two white. Near the middle of the bands on the front and the back are crosses with purple centers, two folds of white quills forming each of the four sides.

The second pair of moccasins belonging to the collection under consideration are each made of a piece of very thin doeskin, colored black. The decoration, a floral design, is formed of quills dyed various colors. The edge is bound with red silk of an old weave.



a — Moccasins in the Anthropological Museum, Florence.



b — Old Catlinite Pipe in Professor Giglioli's Collection. ($\frac{1}{2}$)

These moccasins were never worn and are now as fresh as when they were made, although they have been in Florence since 1828.

The knife-sheath mentioned above is shown in plate *xxi, a*. It is an interesting example of eighteenth century work, being made of heavy buckskin, colored black, similar to the moccasins just described. The extreme length is 280 mm.; the pocket alone is 190 mm. long. The decoration is folded quillwork, forming a lozenge-shaped pattern, each line being made up of three rows of quills — one red, one white, and the third blue. Across the top of the pocket are two bands of folded quills; a fringe, formed probably of tufts of deer or moose hair, formerly extended along the bottom edge of the lower of these decorated bands, but it has disappeared, only the fourteen narrow strips of skin to which it was attached now remaining. A narrow band of quillwork runs along the edge of the top. The whole sheath is outlined with small white opaque beads of European manufacture.

The second and smallest specimen on plate *xxi (b)* is one of two similar pieces in the same collection. This is not a very old piece, but is interesting on account of the material of which it is made, namely, the scaly skin of the tail of a beaver.

The third sheath (pl. *xxi, c*) is an unusually good example of a western type, made of heavy skin. The length is 280 mm. and the width at the top 90 mm. The quillwork decoration of the band is well made and the quills are dyed various bright colors. The long fringe is bound at intervals with white quills and terminates in tufts of hair, colored red. The edge of this sheath is outlined with a narrow line of quills, alternating red, white, and blue.

In the Kircheriano Museum in Rome there are four specimens which were collected by Maximilian, Prince of Wied-Neuwied, among the Omaha. One is a knife-sheath somewhat similar to the one just described, a horse bridle, and a saddle blanket, the last two having a similar decoration in quillwork. The fourth object and the most interesting is a club formed of a natural root, gnarled and knotted at one end and tapering to the other. The smaller end is bound with tanned skin, which served as the handle; around the upper end of the skin wrapping is a band of quillwork similar in design and workmanship to that on the other objects. The entire

length of the club is about one meter. The sheath in the Florence Museum probably belonged originally to the same collection as this club.

The small museum in the Collegio di Propaganda Fide, in Rome, has a very rich ethnological collection from Africa and a small miscellaneous collection from other parts of the world, including a few notable and rare objects from North America.

The gem of the North American collection is a piece of wampum, which is probably the finest existing example of that form of art. This superb specimen is formed of fifteen rows of beads aggregating 1,940 mm. in length and 108 mm. in width. Each row consists of 646 beads, making a total of 9,690. Although made in a single straight piece in the regular form of a 'belt,' this was evidently intended for an entirely different purpose. As will be seen in plate XXII, it has been arranged and fastened in such a manner as to form a loop, allowing the ends to hang to an equal length. This peculiar form, as well as the figures and symbols which are represented in white beads, makes it appear to have been intended for use as a stole, and it is so designated in the museum. It was probably made for some missionary in the St Lawrence valley or in the Iroquois country. As has already been stated, there are fifteen rows of beads. Between these there is a narrow strip of tanned buckskin extending the entire length and continuing as a fringe at each end. The beads are strung on two threads of sinew, one of which passes on each side of the intervening strips of buckskin.

The interesting designs represented in white beads suggest on one side Christianity, on the other paganism. Considering this object as a stole with the ends hanging down in front, the first figure on the right is probably intended to represent the chapel of the mission. One window is represented, as well as a cross over the doorway; next are several characters which may identify the mission; beyond these are two keys, crossed, the meaning of which is obvious. The two figures in the middle evidently represent the missionary and an Indian, the former being on the right, and the latter on the left, holding a cross, the Christian symbol, between



INDIAN KNIFE SHEATHS IN THE ANTHROPOLOGICAL MUSEUM, FLORENCE

them. The figure which is assumed to represent the Indian is holding another object also, but what it is, is difficult to say. Beyond this figure is a zigzag pattern ending in what seems to represent two arrows, crossed. Next is a human figure, an Indian grasping a bow in one hand. The last two designs suggest a pipe and a pine tree. It will be noticed that the designs on the two extreme ends are different.

That the history of this unique piece is not known is to be regretted; but its presence in the museum in the Collegio di Propaganda Fide may be accepted as proof of its having been brought from America by a missionary.

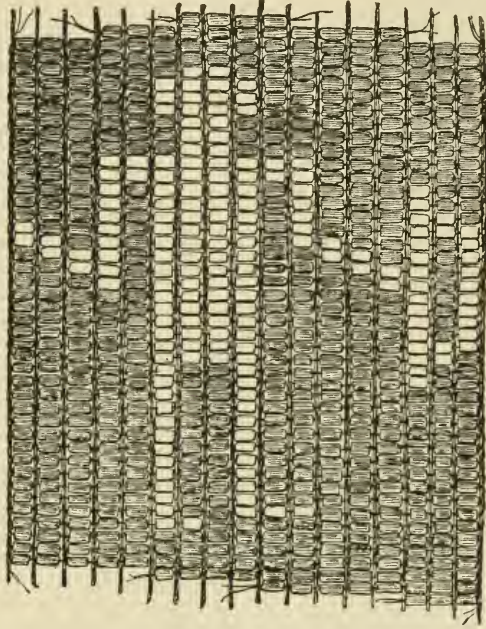


FIG. 12.—Figure on a Huron wampum belt in the Trocadero Museum, Paris.

There is a similarity between the figure of the Indian holding a bow, on the piece just described, and four figures on a Huron belt presented by Professor Hamy in his work illustrating the *Galerie Américaine du Musée d'Ethnographie du Trocadero* in Paris. The accompanying sketch (fig. 12) of one of the figures on that belt was made from this illustration. While the figures on the specimen now in Rome are placed across the band, those on the other extend lengthwise, as may be seen by comparing the two illustrations.

The large Onondaga belt figured by Professor Holmes¹ is a trifle longer than the specimen in Rome, each now being formed of 650 beads, and there is close similarity in the human figures represented on both pieces.

There are other examples of wampum in the same collection, all of minor importance in comparison with the one described, but interesting nevertheless. One is a small band, about 250 mm. in length, formed of four rows of beads. The beads appear to be old and much worn; but they have been newly strung on yellow wool, which detracts greatly from the value of the piece. Two small pipes, made of grayish steatite, with an opening for the stem forming an acute angle with the bowl, have each a perforation through the under part. To each of these is attached a single string of wampum, alternating purple and white. Both pipes are new, never having been used; but the beads, like those forming the small band, appear to be old—certainly much older than the pipes to which they are attached. These three pieces seem to belong together, and the beads may be the remnants of an old belt. It is not known when or where the specimens were collected.

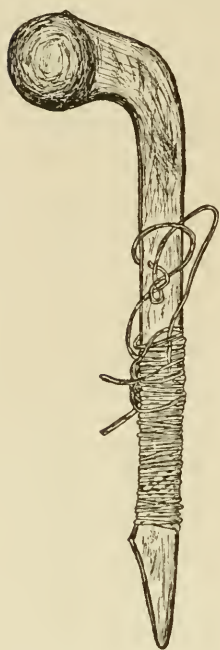
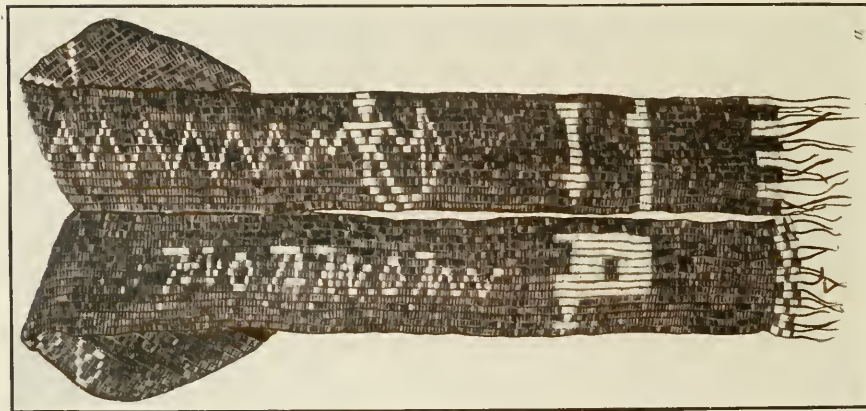


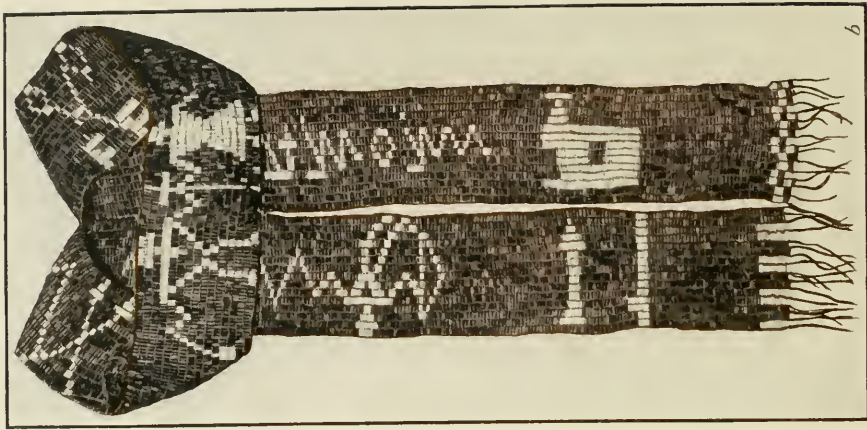
FIG. 13.—Small club in the Museum of the Collegio di Propaganda Fide, Rome.

Another object worthy of attention in the same collection is a small club (figure 13). The dimensions are: length 320 mm.; the handle, which is rectangular in section, is 23 mm. wide and 11 mm. thick; the ball at the end is 47 mm. in diameter. The whole is made of a single piece of wood, rather heavy and dark in color. It shows the effect of long use, being much worn and highly polished. Long, narrow strips of tanned buckskin are wound round the lower part of the handle; probably these were originally wound smooth and even, but they have become loosened. At short intervals the strip of skin is bound with porcupine quills colored red and white. The question naturally arises, for what purpose was this small club used? It is too small and light to have been serviceable as a weapon, although in form it resembles

¹ Art in Shell of the Ancient Americans, in *Second Report of the Bureau of Ethnology*, 1883, pl. xlii.



FRONT



BACK

the primitive club of many American tribes. It may have been used as a drumstick, for which purpose it would have served admirably.

Both museums in Rome, the Kircheriano and that in the Propaganda Fide, have interesting old examples of small boxes made of birch bark, with covers, the whole being decorated with porcupine quillwork in various designs. An unusually large and fine specimen is in the latter museum. In the same collections are several strips of birch bark and thin strips of cedar, covered with symbols and totems of Algonquian origin. The pieces of bark were at one time folded and attached in the form of a book, but it is evident several pieces are missing.

Among the specimens from the eastern part of America in Professor Giglioli's collection is one of special historic interest. It is an adz or gouge made of granite, 215 mm. in length, 62 mm. in width, with a maximum thickness of 37 mm. Attached to it is a label, so old and discolored that only the first part of the writing can be deciphered; it reads:

HACHE DES INDIENS QUI SOUS LA CONDUITE DE LEUR CHEF BRANT, EN 1790, MASSACRERENT ET PRECIPITERENT DANS L'HUDSON 25 PERSONNES SOUS LE COMMANDEMENT. . .

On a small label is written:

TUSCARORA — SPLITTING FOOT.

There is no reason to doubt the authenticity of the labels, so faded and discolored they are; and it is interesting to know that the so-called adz was probably used as a weapon, and that at a comparatively late day.

Many excellent catlinite pipes are to be seen in the older collections in Europe, a number of them having the characteristic stem often a meter in length and decorations of quillwork, tufts of hair, or feathers.

One very good specimen in the Propaganda Fide bears a label on which is written:

PIPE OFFERTE Á SA SAINTETÉ PAR LE CHEF MA-ZA-KAH AU NOM DES SIOUX ET DE SAUTEUX,

but unfortunately neither date nor locality is mentioned. The pipe

is rather large and well leaded ; the stem is long and flat, and is partly covered with quillwork.

In the Kircheriano Museum in Rome, as well as in the Anthropological Museum in Florence, are preserved several excellent examples of pipes. One in the former collection, made of a piece of beautiful catlinite, and having a long base and a conical bowl, is decorated with narrow bands of lead. The stem belonging to it is nearly a meter in length and for about one-third of the distance from the mouth-piece is covered with excellent quillwork. This is divided into five panels or sections of equal size. The first, third, and fifth sections are white and have in the center a thunder-bird in black ; the second and fourth have a red ground, the former being plain while in the latter there is a thunder-bird worked in white quills. The sections are divided by two narrow lines of black quills, between which are dots of black and white. The decoration on the other side is rather different.

A long inscription written on the stem is so badly rubbed and worn as to be scarcely legible ; however, it is possible to make out the word " Commissioner " and the date, " Aug. 20th 1825. " Now, during the month of August, 1825, a United States ' commissioner, ' Governor Lewis Cass, met representatives of different tribes, including the Ojibway, the Sauk and Foxes, and the Sioux, at Prairie du Chien, Wisconsin, and there formulated a treaty which was signed on the 19th day of the month named. It is safe to consider this pipe as being one used by the Sioux at that time, as the date it bears was the day after the signing of the treaty. It is unfortunate that we cannot read the entire inscription, for it would probably be of historical value.

There is another pipe, also in the Kircheriano Museum, which may have been obtained at the same time. It also is of catlinite, not leaded, but having above the base, back of the bowl and facing the smoker, the figure of a small animal, probably intended to represent a mink or a marten. The stem belonging to this pipe is nearly a meter in length, broad and flat, and covered for about one-third of its length with quillwork alternating in plain broad bands in red and yellow.

Two bags, one made of an entire beaver skin, the other of the skin of a smaller animal, probably date from the same period.

Originally both were excellent specimens, the tails being covered with elaborate quillwork ; but now they are in a poor state of preservation.

Returning to the subject of pipes, the Florence Museum has some very good examples of both Sioux and Algonquian work.

One Sioux specimen has an excellent stem, exactly one meter in length, covered with quills for a distance of 310 mm. from the smaller end. This is divided into sections similar to the pipe in Rome, and the pattern is also the same ; but nothing is known of its history.

A curious specimen in this collection is an elaborately carved pipe of greenish steatite, measuring 135 mm. in length. Originally three human figures were represented astride the base, but the greater portion of two of them has been broken and lost. This belongs to the same class of work as the "Chippewa pipe" figured by Doctor Wilson.¹

An unusually beautiful old catlinite pipe in Professor Giglioli's collection is figured in plate xx, *b*. The ornaments attached to the ears and nose are of silver. This piece was obtained in Paris some years ago and probably dates from early in the nineteenth century.

There are other objects in these institutions that have been brought from America. These include garments of buckskin, beaded moccasins and belts, knife-sheaths, and bags, all comparatively modern and of no special interest, but necessary to represent the arts of the native tribes. On the foregoing pages are briefly described the oldest and the most valuable and interesting objects from North America preserved in Italian collections. These, by the kindness of Professors Mantegazza and Pigorini, I have been able to study and photograph ; and to Professor Giglioli I am under special obligation for advice and friendly interest, and for the benefit and pleasure derived from studying his magnificent private collection.

As the specimens illustrated in this article were never before photographed, I trust this short account of them may be of interest to students of American ethnology.

FLORENCE, ITALY.

¹ *Prehistoric Man*, vol. 1, p. 392.

RUINS OF THE CERRO DE MONTEZUMA

By A. H. BLACKISTON

The ruins of the fortifications and so-called watch-tower that crown the summit of the Cerro de Montezuma, southwest of and overlooking the remains of the famous Casas Grandes of Chihuahua, Mexico, have received as a rule but imperfect notice from the travelers and explorers who from time to time have visited this section. With the exception of the description in Bandelier's Final Report on Investigations in the Southwest¹ — an excellent account in many particulars — and that in the Archives de la Commission Scientifique du Mexique, the descriptions of these ruins are either of a very meager nature or are decidedly misleading. Escudero briefly mentions them as partaking of the nature of a fortified watch-tower, and notes a number of lines of stone on the southern slope of the mountain; Clavigero, who never saw the ruins, gives a far from satisfactory though better description than Bancroft seems to suspect, but speaks of them as being defended on one side by a high mountain; Bartlett viewed them from a distance, while Lumholtz climbed the steep ascent but apparently lacked either time or inclination for a detailed account. The *Album Mexicano* also speaks of this monument as a fortress built of great stones, though it soars into the imaginary when alluding to walls 20 feet thick, and to the destruction of the buildings for the sake of the stone they contained — a manifest absurdity when it is learned that the stones are uncut and that the entire space between this point and the nearest habitations is covered with a superabundance of similar rock. And, indeed, even were this not the case, the task of removing stone from these ruins would prove of Herculean proportions for the somewhat shiftlessly inclined native of to-day.

Accompanied by a Mexican guide who did not display an unnecessary amount of enthusiasm, the writer crossed the plain and

¹ Papers of the Archaeological Institute of America, Am. Series, IV, pt. 2, Cambridge, 1892.

successfully climbed the Cerro de Montezuma, then veiled in clouds, though at times it was necessary to lead the horses and at others to encourage their exhausted spirits with an energy which we little felt like expending. A piercing wind swept across the crest and carried the snow in swirling eddies into the depths beyond, while the clouds, perceptibly thinning as we neared the top (the upper stratum having been reached), left a comparatively clear but by no means comfortable field for exploration.

About two miles southwest of the Casas Grandes lies the base of the mountain that forms the culminating peak of the range which borders the western side of the Casas Grandes valley, and upon which are situated the ruins that form the subject of this paper. An ancient road approximately six miles long leads from the former ruins to the summit of the mountain, winding around the precipitous sides and forming by far the most feasible route of ascent. In the lowlands its traces are faint and frequently lost, but higher it is not only most distinct, but for the greater part of its length has been either walled in along the exposed portions or cut into the mountain side. In sections the trail is from seven to eight feet wide, in others much narrower, preserving as a whole a uniform grade, though local conformations sometimes make an abrupt ascent imperative, but even then all obstacles were met with consummate skill. The most pronounced place of this character is at the point where the road enters the northern end of the platform from whose southern extremity rises the peak crowned by the main ruins.

This step or bench runs out into a bold promontory, and it is here that the "road of the Montezumas," as the natives term it, after many short, sharp turns and steep ascents among the great boulders, enters through a natural gateway in the rock, the village that grimly lies across its path. Every foot of this approach is commanded by fortifications placed in a manner that excites admiration, and in fact the entire village seems to have partaken of a military character, as it is most ably defended by walls and parapets of stone.

The houses, solidly built of the same material, are roofless, and in but a fair state of preservation, with the walls still standing to

the height of from 2 to 4 feet. Their number is about twenty-two, and among them are several of circular construction, one of which measures 19 feet 2 inches in diameter with walls 2 feet 10 inches thick. Near the center of the village is a large circular basin or depression 67 feet in diameter, on which opens a number of structures, the measurement of the best preserved one being 11 feet 3 inches in length, 5 feet 5 inches in width, with walls 2 feet thick. This ruin, once probably a store-house of some kind, had foundations of adobe rising about 2 feet from the floor—the only instance in which this material was observed. A depression similar to the large one just described, located in a village ruin many miles toward the headwaters of the Piedras Verdes river, was likewise examined by the writer. Regarding the original character of these basins but little can be said beyond the advancement of the theory that they were courts, the sides of which had been elevated by the falling walls of the surrounding houses. That they were reservoirs is hardly probable, as in the case first cited the necessary water supply for a receptacle of the size was lacking, while in the latter an abundance of water was near at hand.

But by far the most striking object in these ruins is the great stone wall running in a northwesterly-southeasterly direction along the eastern escarpment of the plateau, and measuring between 300 and 400 feet long, 5 feet thick, and more than 6 feet high on the outer side. Toward the central section project the ruins of what seems to have been a very formidable tower or redoubt, 18 feet in diameter, encircled at a lower level by an outer wall of great strength.

The inhabitants of this place exhibited a keen appreciation of its defensive possibilities and literally left no stone unturned to render it as nearly impregnable as possible. In the valley adobe was exclusively used as a building material, but here, with the exception noted, undressed stone solidly and neatly laid, as far as observed, without mortar, was exclusively employed, the individual stones averaging 1 foot long by 7 or 8 inches in thickness, and 3 or 4 inches in width, though in some cases, notably in the parapets, they reached much greater proportions. Indeed in one place the writer noticed two boulders each about 5 feet high.

Approximately 200 feet to the south of the village, near the point where the road begins to make the final ascent to the summit, lies a circular mass of stone 14 feet 5 inches in diameter, probably the remains of a tower, the location of which is significant as from a military point of view it could have been of but little service. The use to which it was devoted was evidently of a formal or religious nature, and probably bore an important relation to the ruins on the nearby peak between which and the village it formed the connecting link.

After passing along the crest of the plateau, past the solitary tower, the road clings to the precipitous western face of the mountain and finally, becoming smaller and less clearly defined, at a distance of half a mile reaches the summit.

Here on the very crest of the peak and around its sides, 2,000 feet above the valley, in an unsurpassed situation, lies a ruin of great interest. A circular wall, 56 feet 2 inches in diameter, incloses the remains of a tower or building 18½ feet square, whose sides, 2½ feet in thickness and from 4 to 6 feet high, face the cardinal points of the compass as in the case of the valley ruins, of the Casa Grande on the Gila river, and of the palaces and temples of Palenque and Mitla. To the east a projection about 10 feet wide with walls 1½ feet thick runs to the encircling wall which at this point is 5 feet 4 inches wide, while to the west its width is but a little more than 4 feet; the height of this wall is 6 feet.

Outside of this is another encircling wall, inclosing the inner one at a distance of 36 feet on the western and 64 feet 4 inches on the southern side. It varies in thickness from 1 foot 3 inches to 2 feet 7 inches, being thickest to the north and east. Strong outlying walls are numerous on the northern slope where several extensive works of this nature lie between the summit and the village, while a number of roads or trails lead in various directions to the lowlands, the most important being the one already described.

Though there seem to have been far too few houses to shelter the garrison that must have been required to man effectively such extensive works, however large or small the number, the problem of an adequate water supply must of necessity have been of vital

importance. This need was probably satisfactorily met by means of a spring which, my guide informed me, was situated below the parapet where the road entered the village, but which the writer was unable to find on account of the depth of snow at this point. Two reservoirs were cut in the rock near the lower ruins to provide an additional supply of water.

We now come to the point of greatest interest in connection with these ruins, and one which in time may cast much light on the nature of the early culture of this region. About 90 feet down the western slope an opening that had been walled in was discovered a few years ago. With the dazzling beacon of buried treasure ever before their eyes, luring them farther into the heart of the mountain, several of the whites of this section began the task of opening the tunnel, which they found most solidly blocked. Up to the present time they have blasted their way along 135 feet of its length and have found that this subterranean passage descends by irregular gradations to a point directly under the ruins on the summit; what lies at the end of the tunnel is yet unknown. No signs of ore deposits or other indications of the presence of a mine have been encountered.

These features, taken in connection with other distinctive features later to be enumerated, seem to leave but little doubt that this ruin fulfilled a rôle other than that of a mere watch-tower, though from the great expanse of territory stretching before the eye from its elevation (a view which unfortunately the writer was obliged to miss) it is not to be supposed that this feature was by any means ignored.

Popular tradition among the natives unhesitatingly proclaims the remains to be the palace of the great king who reigned from these heights over the inhabitants of the Casas Grandes — a regal throne indeed, with its head among the clouds and its foot upon the golden maize fields of the valley. But popular tradition often lacks in accuracy what it supplies in imagination, and this case is not an exception. For it is probable that religion was the only great monarch that ruled from these ancient ruins, even as in many forms it has ruled before and since from the temples of the Old World and the New, from Thebes and Babylon, from Teotihuacan and Pachacamac.

For wherever his habitat or whatever his color, man is much the same throughout the world.

The elaborately constructed road would in itself seem to countenance the theory of religious origin — a mere watch-tower would need no such pathway ; while the extensive system of fortifications, the orientation of the crowning tower, its eastward projection, the tunnel under it, and the nature of the village guarding the entrance to the plateau, all point to the same conclusion.

That there was direct communication, religious as well as military, between these ruins and those of the valley, there is little doubt, but whether this partook of the sanguinary nature of the worship of Huitzilopochtli or of the complacent character of the Peruvian pantheon, it is impossible to conjecture. The past still veils in deep uncertainty the true signification of these remains, but it may yet be found that the key to the culture of the inhabitants of the Casas Grandes lies deep in the heart of the Cerro de Montezuma.

THE ICELANDIC COLONY IN GREENLAND

By VILHJÁLMUR STEFÁNSSON

NOTE. — There are three chief sources used in the following article : (1) the various Icelandic sagas, some of which deal largely with Greenland and Greenlanders, while others refer to Greenland events only incidentally ; (2) the Icelandic Annals, for and including the years 1288 to 1411 ; and (3) *Diplomatic Papers*, mostly papal documents relating to church affairs, although some of them are records of ecclesiastical courts, and similar chronicles. These three sources have been included in a three-volume compilation, *Grænlands Historiske Mindesmærker*, published in Copenhagen, 1838-45. The author of the present paper has relied chiefly on this authority so far as the Latin papers and the Annals are concerned ; in the case of the sagas he has used the Icelandic editions of them in the library of Harvard College.

The Northmen who inhabited the coasts of Norway, Sweden, and Denmark were, when history brings them into view, a seafaring people. At first they hugged their own coasts ; later they crossed the Baltic and the North sea and beat up and down the shores for purposes of trade or pillage — often discharging a merchant cargo and then turning to piracy. Becoming bolder with experience they “ sailed directly west ”, as the sagas have it, and discovered the Shetlands ; a little later they came upon the Orkneys and the north coast of Scotland. About the middle of the ninth century the Faroes became known to the Northmen, and in 874 the first settlement was made in Iceland. By 930 all of Iceland had been colonized, chiefly by those of the Norwegian nobility, with their retainers, who found the overlordship of Harald the Fairhaired too irksome. Harald became the first king of all Norway after the battle of Hafrsfjord in 872, when the opposition of the independent petty kings, of whom Harald had been one, was finally crushed.

The discovery of Greenland was the logical result of the settlement of Iceland combined with the lack on the part of the mariner of that time of compass or of means of accurately reckoning his position at sea, for a ship from Norway, failing to strike Iceland and not knowing its location, was almost certain to reach Greenland.

Thus it happened about the year 900 that a certain Gunnbjörn, of Norway, missed Iceland and found himself close to some skerries, with land in sight to the west. Though he had never been to Iceland he knew from descriptions that the shores before him were another land, and so he turned back. The skerries were thereafter known by the name of this navigator, and the tradition of them was preserved.

About the year 950 a man named Eiríkr the Red was outlawed in Norway for the killing of several people for whom he had a personal dislike. He went to Iceland, but there also certain persons did not please him; he killed some of them and was again outlawed, this time for three years.

Not wishing apparently to trust himself where he might find a disagreeable neighbor on each hand, Eiríkr set sail for Gunnbjörn's skerries and the land that lay beyond. It was in 982 he sailed, and the next three years he spent in exploring the coast, especially that part of it lying between Cape Farewell and Ikersuak, which he called Broad Firth. He selected a site for a homestead, named many mountains, islands, and bays, and called the country Greenland. He "said that people would desire going to it all the more if the land had a fair name." In 984 Eiríkr went to Iceland for his worldly possessions, and the next year he returned to Greenland as his new home.

This was the beginning of the colony in Greenland, which may fairly be called Icelandic, for the records show that most of the settlers came from Iceland. In one summer 25 ships left the west coast of Iceland bound for the new settlements; only 14 of these reached their destination, the rest being either lost at sea or driven back by ice and unfavorable weather. Allowing 50 emigrants to a ship, and this is considered a reasonable estimate by authorities on the navigation of the period, probably some 700 Icelanders went to Greenland the first summer. After this time the records mention only a few families who went there from either Iceland or Norway. What the population numbered when the colony was at its best, say in the twelfth century, must remain a matter for conjecture.

Grœnlandiæ Vetus Chorographia, an ancient manuscript now lost, is quoted by the medieval historian Björn Jónsson. It gives some interesting facts about the colony and furnishes a basis for an estimate of its population.

There were two Icelandic colonies in Greenland: the Eastern and the Western. Both were on the southwest coast, for the east coast was then, as now, barricaded with ice. The Eastern settlement is considered to have reached from 60° to 61° north latitude, while the Western settlement was between 64° and 65°. After naming and describing various bays, islands, and other features in the Eastern settlement, Jónsson's account goes on to say:

"Thence (from the E. Settlement) it is vi days, rowing for vi men to the Western Settlement, then it is vi days, rowing to Lysu-firth, thence vi days to the Karl-Booths, thence iii days to Bear Island and twelve days around it. . . . It is said there are CLXXX dwellings in the Eastern Settlement and xc in the Western."

It seems reasonable to suppose that there were at least 10 persons on a farm, for in Iceland, the country most nearly analogous, the average is more than 20 to a farm. On the basis of 280 farms in the two colonies, the total population of Greenland at the time under consideration should have fallen not far short of 3,000.

The literary sources, as well as modern excavations and researches, give evidence that the manner of life in the colonies was essentially the same as in Iceland. Horses, cattle, sheep, and goats were brought from Iceland, and the barns provided for them are shown to have been of a type of construction essentially similar to that common in the mother country.¹

The two things that tended most to differentiate the conditions of life in Greenland from those prevailing in Iceland were (a) the greater difficulty in communicating from Greenland with the outside world on account of greater distance and more dangerous seas, and (b) the abundance in Greenland of game of various kinds either scarce or unknown in Iceland — bears, deer, foxes, seals, walrus, and other animals.

At first, communication between Greenland and Iceland and Norway was fairly frequent. After the new country was Christian-

¹ *Grœnlendinga Saga*, by Professor F. Jónsson: Copenhagen, 1899.

ized in the year 1000, church documents throw considerable light on the life of the people; after 1124, when the first bishop of Greenland as a separate and independent bishopric was consecrated, papal letters and documents come to be of considerable interest. They show, among other things, that Greenland contributed, in walrus ivory, oil, and ropes of hide, its share toward the maintenance of the Crusades.

During the first two centuries of their history the Greenlanders proved themselves intrepid voyagers, sailing to Markland (probably Newfoundland) for "merchandise"; such is the term used in the Iceland annals, though house timber is probably meant. A ship which had "previously been in the Markland trade" from Greenland was driven upon the west coast of Iceland in 1347. This is probably the last authentic mention in Icelandic records of voyages to America.

It was early found useful to establish summer hunting stations far up the west coast of Greenland, for game was much more abundant there than near the settlements; besides, in many cases, those who killed game within the limits of the colony were forced to give a certain proportion of it to the church. Voyages to the north therefore became frequent, and it is from the account of one of these that we get the earliest intimation that the colonists were beginning to dread the approach of the Eskimo. Our authority is the Icelandic *Hauk's-Book*; the voyage spoken of took place in the year 1266.

"The summer that the priest Arnaldr left Greenland . . . there were found in the sea pieces of wood that had been hewn with small axes or knives, and one piece that had stuck in it rows of teeth and pieces of bone. That summer also there came from Northr-Seta (one of the summer hunting stations to the north) men who had gone farther north than anyone else, so far as was known. They found no dwellings of savages except in the heath above Krok-Firth, and it is therefore men think that that is the nearest way for the savages to come (upon the settlements) from the lands which they inhabit.

"Then the clergy fitted out ships to discover what there was farther north than they had ever been before, and they sailed beyond Krok-Firth Heath *until the land became lower*.¹ Then there came a south wind, with

¹ This may possibly mean that they sailed out to sea, i. e., toward America, until the receding land looked low on the horizon.

darkness, and they had to drift before it. When it cleared they saw many islands and various kinds of game — seal, whales, and a great number of bears. They went quite to the bottom of the bay, and all the land was lower that way, both the land to the south and the glacier, for there was a glacier to the south of them as far as the eye could reach. They found some old-looking savage dwellings, but they could not land for fear of the bears. Then they proceeded another three days and found more savages' dwellings in some islands south of Snow Head."

Later on, in describing the land in which these most remote hunting stations were situated, the same account says:

"No wood grows there, but there is driftwood. This northward extension of Greenland especially abounds in trees and other drift materials that come from Markland. The Greenlanders must continually keep up sailings to the north, both for game and for driftwood."

To show how far north these earliest arctic voyagers penetrated, the Danish archeologist and traveler, Daniel Bruun, cites the fact that in 1824 there was found 20 miles north of the most northerly Danish post, Upernavik (north latitude $72^{\circ} 55' 20''$) a small Icelandic runic stone. This was discovered in one of three ancient stone heaps which are built there in a hillside, evidently as a landmark to sailors. The inscription on the stone reads: "Erlingr Sighvatsson, Bjarni Thortharson, and Indrithi Oddsson, the Saturday before Rogation Day (i. e., April 25) raised these *vörður* and leveled the surrounding ground."

In the fourteenth century contact with the Eskimo became more frequent and the settlers began to feel their nearness as a source of impending danger. Their fears were soon realized, for about the middle of the century the Western settlement was completely destroyed. No eye-witness escaped to tell the tale to the Eastern colony, whose people, after passing some years without communication with the sister settlement, finally fitted out an expedition under the command of one Ivar Barthsson, a Norwegian who came to Greenland in 1341 as superintendent of the bishopric farm of Garthr. Later this man went back to Norway, and there told to another person, who transcribed them, the facts which go to make up the well-known *Description of Greenland*, by Ivar Barthsson. A translation of a few lines from this work follows:

“ In the western bay there stands a large church, known as the church of Steinsnes ; this was once a ‘ chief-church ’ and the seat of a bishop.¹ Now the savages have destroyed the Western Settlement ; there still are there horses, goats, cattle, sheep—all wild, for there are no people, Christian or heathen.

“ All these things were told by Iffver Bardsen, a Greenlander, who was overseer on the farm of the Bishop of Greenland at Gardum for many years. He had seen all these things and he was one of those nominated by the judge to go to the Western Settlement against the savages to drive them thence. But when they got thither they found no man, Christian or heathen, but some wild cattle and sheep. These they used for food, and took as many of them as the ships could carry. With these they sailed home, and the above mentioned Iffver was with them.”

The next paragraph in the tragic history of the Greenlanders is written in the *Annals of Iceland* under date of 1379. It reads : “ (This year) the savages made war on the Greenlanders and killed XVIII of them. They (the savages) captured two boys and carried them away.”

Another indication that the Eskimo were by this time spreading themselves over much of the south of Greenland is found in the account of the shipwreck upon an uninhabited part of the coast, of Björn the Pilgrim (Björn Jórsalafari) about the year 1386. He rescued (apparently near Cape Farewell) two savages whom he found on a reef that would have been covered at high tide. They were taken along with the party as servants, and Björn mentions the fact that they used for sewing fibers made from the intestines of “ whales.”²

For the year 1448 we have an important papal document in response to an appeal from the churches in Greenland for aid from the Holy See. The letter from Rome recites that, 30 years before, the barbarians (elsewhere in the same document called “ the heathen ”) had made a descent upon the settlement, destroying houses and churches, so that “ there are now but 9 parishes where churches are maintained.”

¹ Probably a farm at which the bishop of Greenland (called in papal documents “ *Episcopos Gardensis* ”) resided when visiting the Western settlement.

² Various sea animals, ranging in size from the porpoise upward, are in Icelandic collectively known as “ whales.”

Because the disturbers are sometimes referred to as "heathen," and because the prisoners are said, in the letter, to have been enslaved for a time and then sent home, it is conjectured by some that the English, who about this time concluded a peace with Denmark and exchanged prisoners, are the "heathen" spoken of as raiding Greenland. Whether His Holiness was in the habit of referring to the English of the period as "heathen" the writer of this paper does not know.

In regard to the identity of the raiders the opinion of the learned Icelandic bishop, Hans Finses, is of interest, for he had at his disposal manuscripts which are now lost, many of them through the burning in the last century of the manuscript collection of the University of Copenhagen.

"So far as the identity of the enemy is concerned," says the bishop, "it can be concluded with certainty that they came from the nearby coast of America or from farther up the west coast of Greenland, for the Icelandic manuscripts frequently speak of the 'skrælingar' as a people who came in vast numbers on a fleet of skinboats and armed with spears and bows."

Historically the Bull of 1448 may be considered the last word on the original Icelandic settlements in Greenland, although there is another Bull early in the pontificate of Alexander VI which throws some light on the situation in Europe. It confirms the appointment (*ca.* 1493) of the Benedictine monk Mathias to the bishopric of Greenland, and goes on to tell that no ships have come from there for 80 years, that the people have mostly fallen away from the true faith, and that this monk will endeavor to bring them back to the church.

But archeological investigations made under the auspices of the Danish government have brought to light several things and have hinted at further discoveries. Remains of huts built on mountaintops have been found, and it seems unlikely that these could have been used otherwise than as lookouts for detecting the approach of an enemy. None of these are mentioned in the literary sources, and none similar were built in Iceland, so far as known. Many of the house ruins excavated show evidences of destruction by fire, and the popular traditions of the Eskimo of the district say that many

of the Original People (Kablunokks) were destroyed by being burned in their houses.

In 1880 the Dane G. F. Holm¹ visited and examined carefully many of the old Norse ruins, and in 1894 the archeologist Daniel Bruun² completed a more detailed survey. Their descriptions, drawings, and photographs leave no doubt in the mind of anyone familiar with Icelandic archeology that the ruins are Icelandic.

It is to be expected that among the more conspicuous ruins would be those of churches. At the height of the colonies' development there are recorded twelve churches and two monasteries in the Eastern settlement and four churches in the Western. The "Dome-church" at the bishopric, Garthr, has been found, as well as the ruins of five other churches. The total interior length of the church at Garthr was found by Bruun to be 25 meters, and this is considerably the largest ruin. One of the ruins — the church at Kakortok near Julianehaab — is so well preserved that the walls and gables stand practically intact. In some cases, as at the bishopric, the stone of the old buildings has been used for the construction of modern Eskimo houses, and nothing of the former now remains but the foundations.

In excavating the churchyards, finds of some importance have been made; from that at Ikigait an Icelandic runic stone was recovered, together with a small wooden cross, some fragments of clothing, and other relics.³

At the bishopric, Garthr, a cow stable has been found containing stalls for a hundred head of cattle. This accords well with the *Speculum Regale* and other early sources, which speak of cattle, sheep, goats, and horses as important in the life of the Greenlanders; butter, cheese, and woolen cloth were among their important articles of trade. Besides remains of barns there have been discovered plots of ground leveled for meadows and surrounded by low earth walls, as is still the case in Iceland.

¹ *Meddelelser om Grönland*, v1 (second printing), Copenhagen, 1894.

² *Ibid.*, xvi, Copenhagen, 1896.

³ Daniel Bruun, *Det høje Nord*, Copenhagen, 1902.

Considering the historical and archeological evidences together, it seems probable that the Icelandic colony in Greenland was destroyed by the Eskimo rather than assimilated with them. Apparently there are few, if any, traces of early Scandinavian influence upon the culture of the natives, and the word for *sheep* is said to be the only Icelandic term that has survived in the language of the Eskimo.¹ There are Icelandic traditions, probably not well founded, to the effect that the main body of the Eastern colony moved over to Markland (America); this is especially discredited by the almost certain knowledge we have that the Greenlanders of the time were in possession of no seaworthy ships.

When the colony came to an end will probably always remain doubtful. When connection with the outer world ceased their power of resistance may have declined faster than it did before, though it is certain that the period of highest prosperity had already been passed, owing to the oppressive trade monopoly long maintained by Norway through the merchants of Bergen. The colonists possibly survived into the sixteenth century; the Pope appointed bishops of Garthr as late as 1520, but this fact may evidence a desire to bestow an office rather than a genuine belief in the existence of the colony. The Eskimo traditions represent a period of struggle where their enemies held out for a long time even after there was but one farm left to them. This, the same traditions say, the Eskimo at last succeeded in burning. As already stated, several of the ruins show evidences of destruction by fire, and this final conflagration may have taken place while the country's last bishop, Vincentius, held the title "Episcopus Gardensis" in Europe, toward the middle of the sixteenth century.

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¹ It has been pointed out by the editor of *Grænlands Historiske Mindesmærker* that the geographic term *utiblik*, used by the Greenland sagas, cannot be Icelandic and is probably a corruption of the Eskimo word *itiblik*. If that be so, it would go to show earlier contact with the Eskimo than other sources would lead us to accept.

UNWRITTEN LITERATURE OF HAWAII¹

By NATHANIEL B. EMERSON

The *hula* — the dance, with its songs and ceremonies — stood for very much to the ancient Hawaiian; it was to him in place of our concert-hall and lecture-room, our opera and theater, and thus became one of his chief means of social enjoyment. Besides this it kept the communal imagination in living touch with the nation's legendary past. The *hula* had songs proper to itself, but it found a mine of inexhaustible wealth in the epics and wonder-myths that celebrated the doings of the volcanic goddess Pele and her compeers. Thus in the cantillations of the old-time *hula* we find a ready-made anthology that includes every species of composition in the whole range of Hawaiian poetry.

This epic of Pele was chiefly a more or less detached series of poems forming a story addressed not to the closet reader, but to the eye and ear and heart of the assembled chiefs and people; and it was sung. The Hawaiian song, its note of joy *par excellence*, was the *oli*; but it must be noted that in every species of Hawaiian poetry — *mele* — whether epic, or eulogy, or prayer, sounding through them all we shall find the lyric note.

The most telling record of a people's intimate life is the record which it unconsciously makes in its songs. This record which the Hawaiian people have left of themselves is full and specific. When, therefore, we ask what emotions stirred the heart of the old-time Hawaiian as he approached the great themes of life and death, of ambition and jealousy, of sexual love, conjugal love, and parental love; what his attitude toward nature and the dread forces of earthquake and storm, and the mysteries of spirit and the hereafter — we shall find our answer in the songs and prayers and recitations of the *hula*.

¹ Introduction to an unpublished manuscript, *The Unwritten Literature of Hawaii*. Presented at the meeting of the American Anthropological Association, San Francisco, August, 1905.

The hula, it is true, has been unfortunate in the mode and manner of its introduction to us moderns. An institution of divine, that is, religious, origin, the hula has in modern times wandered so far and fallen so low that foreign and critical esteem has come to associate it with the riotous and passionate ebullitions of Polynesian kings and the voluptuous posturings of their flesh-pots. We must, however, make a just distinction between the gestures and bodily contortions presented by the men and women, the actors in the hula, and their uttered words. "The voice is Jacob's voice, but the hands are the hands of Esau." In truth the actors in the hula no longer suit the action to the word. The utterance harks back to the golden age; the gestures are trumped up by the passion of the hour, or dictated by the master of the hula, to whom the real meaning of the old bards is oftentimes a sealed casket.

Whatever indelicacy attaches in modern times to the gestures and contortions of the hula dancers, the old-time hula songs were in large measure untainted with grossness. If there ever was a Polynesian Arcadia, and if it were possible for true reports of the doings and sayings of the Polynesians to reach us from that happy land—reports of their joys and sorrows, their love-makings and their jealousies, their family spats and reconciliations, their worship of beauty and of the gods and goddesses who walked in the garden of beauty—we may, I think, say that such a report would be in substantial agreement with the report that is here offered.

If any one finds himself unable to tolerate the nude, he must not enter the galleries of art. If one's virtue will not endure the love-making of Arcadia, let him banish that myth from his imagination and hie to a convent or a nunnery.

For an account of the first hula we may look to the story of Pele. On one occasion that goddess begged her sisters to dance and sing before her; but they all excused themselves, saying they did not know the art. At that moment in came little Hiiaka, the youngest and the favorite. Unknown to her sisters, the little maiden had practised the dance under the tuition of her friend, the beautiful, but ill-fated, Hopoe. When the invitation was banteringly passed on to her, to the surprise of all Hiiaka modestly consented.

The wave-beaten sand-beach was her floor, the open air her hall.
Feet and hands and swaying form kept time to her improvisation :

Look Puna's a-dance in the wind ;
The palm-groves of Kea-au shaken.
Haena and the woman Hopoe dance and sway,
On the beach Nana-huki —
A dance of purest delight —
Down by the sea Nana-huki.

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The hula was a religious service, in which poetry, music, pantomime, and the dance lent themselves under the forms of dramatic art to the refreshment of men's minds. Its view of life was idyllic and it gave itself to the celebration of those mythical times when gods and goddesses moved upon the earth as men and women and when men and women were as gods. As to subject-matter, its warp was spun largely from the bowels of the old-time mythology, that became cords through which the race maintained vital connection with its mysterious past. Interwoven with those, forming the woof, were threads of a thousand hues and of many fabrics, representing the imaginations of the poet, the speculations of the philosopher, the aspirations of many a thirsty soul, as well as the ravings and flame-colored pictures of the sensualist, the mutterings and incantations of the kahuna, the mysteries and paraphernalia of Polynesian mythology, the annals of the nation's history — the material, in fact, which in another nation and under different circumstances would have gone to the making of its poetry, its drama, its literature.

The people were superstitiously religious ; one finds their drama saturated with religious feeling, hedged about with tabu, loaded down with prayer and sacrifice. They were poetical ; nature was full of voices for their ears ; their thoughts came to them as images ; nature was to them an allegory ; all this found expression in their dramatic art. They were musical ; their drama must needs be cast in forms to suit their ideas of rhythm, of melody and harmony — poetic harmony. They were, moreover, the children of passion, sensuous, worshipful of whatever lends itself to pleasure. How

then could the dramatic efforts of this primitive people, still in the bonds of animalism, escape the smirch of passion? It is interesting to note that the songs and poetical pieces which have come down to us from the remotest antiquity are generally inspired with a purer sentiment and a loftier purpose than the modern; but it can be said of them all that when they do step into the mud of animalism it is not to tarry and wallow in it; it is rather with an unconscious naivete, as of a child thinking no evil.

The most advanced modern is no doubt better able to hark back to the sweetness and light and music of the primeval world than the veriest wigwam-dweller that ever chipped an arrowhead or twanged a bow. It is not so much what the primitive man can give us as what we can find in him that is worth our while. The light that a Goethe, a Thoreau, or a Kipling can project into Arcadia is only that mirrored in their own nature.

If one mistakes not the temper and mind of this generation, we are living in an age that is not content to let perish one seed of thought, or one single phase of life that can be rescued from the drift of time. We mourn the extinction of the buffalo of the plains and the birds of the islands, thinking — rightly — that life is somewhat less rich and full without them. What of the people of the plains and of the islands of the sea — is their contribution so nothingless that one can affirm that the orbit of man's mind is complete without it?

Comparison is unavoidable between the place held by the dance in ancient Hawaii and that occupied by the dance in our modern society. The ancient Hawaiians did not as a rule personally and informally indulge in the dance for their own amusement as does pleasure-loving society at the present time. Like the Shah of Persia, but for very different reasons, Hawaiians of the old time left it to be done for them by a paid body of trained performers. This was not because the art and practice of the hula was held in disrepute — quite the reverse — but because it was an accomplishment requiring special education and arduous training both in song and dance, and more especially because it was a religious matter and must be guarded against profanation by the observance of tabus and the performance of priestly rites.

This fact, which we find paralleled in every form of common amusement, sport, and entertainment in ancient Hawaii, sheds a strong light on the genius of the Hawaiian. We are wont to think of the old-time Hawaiians as light-hearted children of nature given to spontaneous outbursts of song and dance as the mood seized, quite as the rustics of "merrie England" joined hands and tripped "the light fantastic toe" in the joyous month of May, or shouted the harvest home at a later season. The genius of the Hawaiian was different. With him the dance was an affair of pre-meditation, an organized effort, guarded by the traditions of a somber religion. And this characteristic, with qualifications, will be found to belong to every variety of popular Hawaiian sport and amusement. Exception, of course, must be made of the unorganized sports of childhood. One is almost inclined to generalize and to say that those children of nature, as we are wont to call them, were in this regard less free and spontaneous than the more advanced race to which we are proud to belong. But if the approaches to the temple of Terpsichore with them were more guarded, we may confidently assert that their enjoyment therein was more deep and abandoned.

HONOLULU,
HAWAII.

EXPLORATION OF THE LOWER AMUR VALLEY

By GERARD FOWKE

The researches herein reported were carried on during the working season of 1898, for the American Museum of Natural History of New York. Investigation was confined strictly to the last 350 miles of the Amur river and to the coast from its mouth to Okhotsk sea.¹ Facts stated and opinions advanced are not intended to include a wider range than the immediate vicinity of the shores.

Before the advent of the Russians, from 1855 to 1860, the natives' diet was confined almost exclusively to meat and fish. The Amur is one of the great salmon streams of the world, though at present Japanese and Russian fishermen succeed in catching the greater portion of the run near the mouth of the river. The main dependence for animal food was the flesh of the elk; these came down in summer from the mountains to feed on the abundant vegetation along the river, and hunters lay in wait for them around the margins of swamps. No shell-fish exist in the region examined, or at least none accessible at the time of need, except a sort of periwinkle or water-snail; these are not used as food at the present time, nor is there any evidence that they ever served this purpose. The absence of shell-fish may be accounted for by the fact that the water of the Amur contains only a very small amount of lime in solution (evidenced by it lathering freely with any kind of soap), and the swift current carries to the sea all clayey sediment, such as is ordinarily deposited by large streams, leaving only sand and gravel in its bed and along the shores. One may walk for miles on the beach after a heavy rain without soiling his shoes.

Possibly some items may have been added to the meager dietary through barter with Manchus, but not enough to be of material value. In summer, while vegetation is abundant, the natives consume quantities of various herbs which grow spontaneously, with

¹ A brief abstract was printed in *Science*, April 14, 1899.

an especial predilection toward garlic or wild onions ; but they have never made the slightest attempt at cultivating the soil until quite recently, and at the best they take no interest in raising crops of any sort except on a very small scale, when they have been urged to do so by the advice and example of the white settlers.

Bone, wood, and fiber seem to have been the primitive materials for nearly all tools, implements, and utensils. Flint or any allied substance adapted to the manufacture of arrow or spear heads is not to be found. Stone suitable for other objects is rare ; it occurs only in the form of water-worn pebbles or small boulders which are not at all plentiful, being confined to limited and widely separated areas along the shores. For many kinds of work they may have been used in their natural forms.

Careful investigation failed to reveal any distinct evidence of a prehistoric people differing in their manner of living from those now occupying the region. Every place at all suitable for a village-site, every stretch of shore or exposed bank bordering on a spot that would seem to hold out to persons in any condition of life the slightest inducement for even temporary occupancy, was thoroughly examined, but usually with negative results. No flint implements were discovered, though a few arrow-heads labeled " from the Amur River," and supposed to have come from this region, are to be seen in the museums at Khabarovsk and Vladivostok. These specimens, or at least the stone of which they are made, may well have been brought from another locality. Some chipped as well as some polished celts were found ; these are quite small, and most of them have the beveled edge which indicates use as scrapers or skin-dressers. Fragments of pottery are abundant in numerous places, on almost every beach in fact that offers a good fishing station. Most of them are pronounced, by both natives and Manchus, to be of " Chinese " (Manchu ?) manufacture. The pieces attributed to local handiwork are mostly rough and of coarse material, with slight endeavor at any sort of ornamentation ; usually they are quite poorly made.

No investigations away from the river were attempted ; the primitive wilderness, with its dense growth, is almost impenetrable, and no one has, or has ever had, a permanent home beyond its borders.

Native hunters of fur-bearing animals are accustomed to make their winter camps not more than five or six miles away from home, and go prepared to remain in them for weeks or months at a time. Not even trails are to be found through the forests or along the river banks; aside from the usual difficulties of making a road under such conditions, the innumerable marshes, lakes, sloughs, and bayous are absolutely impassable. The many tributaries and inlets equally prevent extended journeying along the river shores. So all travel must be by water; in boats during four months of summer, on sledges or sleighs drawn by dogs or horses during four months when the river is frozen, while for two months in spring and a like period in fall all traffic is suspended.

The Amur below Khabarovsk embodies the drainage channels of a series of former lakes. Wide bottom lands alternate with gorges and receding rocky shores. The former are the silt deposits in the basins of the extinct sheets of water; the latter mark the barriers by which the ancient lakes were restricted. The rocky portions of the channel have not yet been eroded to a depth which permits the formation of terraces in the flat border-lands; when the river overflows its immediate banks the water nearly everywhere stretches to the high lands on both sides. There are some exceptions to this rule in places where local conditions have modified the general plan and brought about a different arrangement of topographical features. Such exceptional benches are usually limited in extent, especially so as to their width. Even if those instances in which the bed-rock reaches to the river's shores be included, there are not many level tracts on the Amur above the reach of the highest floods; consequently, as the native villages must be located close to the water, most of them are subject to overflow. Occasionally, though not often, there is a bluff or low hill favorably situated for occupancy; but approach to such elevations from the river is generally somewhat difficult and preference is given to more easily accessible stations, despite the certainty of future inconvenience. Apparently, like many higher in the social scale, the Amur people submit philosophically to preventable hardships merely because they regard such matters as part of the natural course of events; their fathers lived so and it is not for them to violate precedent.

The Russians protect themselves with substantial log houses put together in a manner that bids defiance to the violence and cold of wintry gales, but the natives seem averse to the form of energy required in erecting such buildings. They prefer to cling to their own style of building, despite the fact that it involves the expenditure of a considerably greater amount of labor in producing less satisfactory results. Perhaps, however, the native looks at the latter part of the proposition from a different point of view. In summer, when camping, a hut or tent affords all the protection that is deemed necessary. The simplest form is constructed somewhat like an Indian wigwam, with a number of poles tied together at the top and spread apart at the bottom, this framework being covered with bark or skins, or sometimes nowadays with canvas. To accommodate a larger number, posts are set in the ground and provided with cross-poles and rafters, to which bark is fastened with tough twisted vines, the roof being held in place by stones and poles. This structure may be used for several successive summers. The winter, or permanent, dwelling is constructed practically as follows: A suitable site having been selected, there is marked off a space whose size is determined by the number of persons for whom accommodations are to be provided. The earth within this area is cleared out to a depth varying according to circumstances, but usually about two feet. Should the ground be low-lying or difficult to penetrate, the pit may be shallower; but if easily removed, or well underdrained, the depth may be considerably increased. Posts are set around the margin of the excavated area, with poles and twigs lashed to them horizontally and vertically to form a wattle; mud is thickly plastered over this on both sides. The roof is similarly wattled and plastered on top. Earth is then banked up against the wall on the outside, and spread over the roof, in such amount as may be requisite for protection against the elements. Should the earth removed from the house-site be insufficient or unsuitable for this purpose, more is obtained by digging in any convenient spot. Little pits due to this borrowing are to be seen at every village-site, occupied or abandoned.

In one corner, a fire-place is made of stones built up somewhat like a dome or in the shape of an old-fashioned straw bee-hive. An

opening is left at the bottom for supplying fuel ; and another at the top, into which a large iron kettle is set. From this stove, or furnace, flues lead around the room next to the wall. Each flue consists of two parallel rows of flat stones, set on edge and covered with similar slabs. If stones of proper form are not easily obtainable, bowlders are substituted ; all interstices in the fire-place and flues are closely chinked with mud. There may be three or four of these flues in large houses ; and perhaps another furnace in a corner opposite the first. All the flues finally unite in one, which, after passing through the wall, is carried from 15 to 30 feet outside, where it terminates at a chimney. This may be formed of a log hollowed out like a trough, with a board fastened over the open side ; or it may be made entirely of boards. It is from 10 to 15 feet high, and has a draft ample for the demands made on it. Over the flues sand and fine gravel are piled, held in place at the front by boards and carefully leveled on top, thus forming a raised platform on which the whole family practically lives when indoors. So long as a fire is kept up, the platform is warm and dry.

More or less repair to the walls and roof is necessary after every storm ; with every freeze and thaw also their integrity is impaired. The wattle itself in time yields to age and moisture, and the house becomes untenable. But the inmates do not always await such notice of eviction. A flood beyond the ordinary, causing inconvenience or discomfort ; a period of unusual cold ; the failure of a hunting or fishing expedition ; a bad dream of the " head man " ; an omen of impending trouble or misfortune, or even a slighter appeal to their superstitious fancy, will cause the entire population of a village to pack up incontinently and seek another location. The house thus abandoned soon sinks to decay. The earth piled around its base, reinforced by that falling from the walls, stands as an embankment around the depression within. If the roof timbers give way while the earth still remains on them, the cavity will be shallower to that extent ; should the roof remain intact until the earth washes off, which, if neglected, it will soon do in the very heavy rains prevalent at certain seasons, the embankment is thereby proportionally elevated. When the house remains in use for a long period, the roof will require several renewals on account of this

denudation ; thus the height of the surrounding wall, as compared with the depth of the central portion, may be considerably augmented. Consequently the sites of two houses identical in fabrication may differ greatly in appearance after all the perishable parts have yielded to decay ; one may seem to have had its floor much deeper than the floor of the other. Such dissimilarity can have no bearing upon either the actual or the relative age of two abandoned houses, but, at the most, can only suggest that one was probably occupied a greater length of time than the other.

In referring to measurements hereafter, the figures indicating breadth or diameter will represent the horizontal distance between opposite points on the embankment ; while depth will mean the vertical distance from the top of the surrounding wall to the bottom of the enclosed pit as both now exist.

The word "house-pits" is the closest interpretation of the native name by which these depressions are known. They are regarded, wherever found, as abodes of "the old people." This term signifies simply people who lived at the locality before the present inhabitants came, and has no reference either to the time of the earlier occupancy or to the identity of the dwellers.

With these preliminary remarks, applicable to the territory occupied at this time by the two native tribes of Golds or Goldi, and Gilyaks, a more detailed account of the expedition may be taken up. The names of villages or other places are phonetically spelled according to the pronunciation given by either Russians or natives.

On the right bank of the Amur, somewhat more than 200 miles below Khabarovsk, is a station of the Russian Imperial Post Service. It has no specific name, being merely a place for changing horses in the winter. The native village of Halba is situated two versts (verst = 3,500 English feet) below it. From the station a smooth, gently-sloping gravel beach extends about six versts down the river, terminating at a narrow stream which is the outlet of a lake or lagoon covering probably fifty acres. The beach borders a strip of level bottom land ; between this and the mountains at the back is a wide swampy tract. Elk and game of other varieties resort to the lake, while wild fowl in season throng the marsh. The

beach, which affords a most excellent place for landing canoes and hauling seines, was deemed a good spot for beginning operations.

A verst above Halba are a dozen or more house-pits, from 20 to 40 feet in diameter, and from 3 to 6 feet deep. The sides have attained their final slope. Owing to the profuse growth of brush, weeds, and vines, especially blackberry and wild rose bushes, the exact number of pits could not be ascertained, and no digging was attempted.

Two versts below Halba is the native village of Belgo; here are fifteen or twenty pits similar to those just mentioned. Here also obstacles such as before encountered prevented accurate count. Across one pit, measuring 25 feet from side to side and 4 feet deep, a trench was carried. In the center, 2 feet below the present bottom, a space 3 by 4 feet with a maximum depth of six inches, was burned to a bright red. No ashes or charcoal lay on or around this fire-bed, but its origin was plain. Below this level was fine, clean, yellow sand; above it, the earth from the sides. On the same level were several pieces of pottery, fragments from large vessels. The unchanged sand was loose and easily dug; that which was burned was compact, and gave forth a gritty sound and sensation as it was penetrated by the tools. A skull, quite solid, was picked up on the surface among the weeds a few feet from this pit; but no place could be found from which it was likely to have come.

About a hundred yards above the outlet of the lake, lying under three feet of earth and at the level of the topmost gravel layer of the beach, was a fire-place of flat stones, exactly similar to the kind now in use among the Goldi. Apparently it was constructed when the bed of gravel and sand on which it rested was the highest portion of the beach, and was since covered by the alluvium; at least there was no indication that the overlying earth had ever been disturbed since it was deposited by the water. The slabs were almost in their proper order; there were some traces of other fires in the earth above them, though no stones were found about the latter.

At several other places along the foot of the bank, within a mile of this fire-place others much like it were unearthed at about the same depth. Two of them were cleared out, but no remains of any

kind were found in or about them. Neither could anything be found on the beach except two fragments of pottery and a rude, unfinished, chipped celt.

At Belgo and Halba the river is fully two miles wide ; on an island near the farther side are about 20 house-pits, smaller and shallower than those at the villages. In one, which was cleared out, a flue was found, made of flat stones, just as flues in that region are constructed now. It was covered with five or six inches of earth, probably sedimentary, as the river has flooded the site twice in the last forty years. Portions of two skeletons were found in the river bank where it had caved away. They were just under the sod ; the bones looked quite fresh, and the birch box in which they lay was only slightly touched with decay. A skull, possibly from one of these skeletons, was picked up on the beach ; and a great many potsherds also were found. A Chinese merchant who inspected the latter material said that most of it was of Chinese (Manchurian ?) though some of it was of Goldi manufacture. The oldest man in Belgo does not remember when any one lived on the island. He did not know his age, but his daughter claimed to be more than eighty, and looked it.

At Verchne-Tombovsk, nine versts below Belgo, human remains were exhumed by some workmen in excavating for an ice-house on the point of a terrace where a small stream flows into the Amur. No information could be secured from the men beyond the fact of the bones having been discovered about four feet beneath the surface. At the same time, while a drainage trench was being dug around the ice-house, a fire-place and flue were unearthed near the river bank. They were practically destroyed by the trenching, but enough remained to show that they were of the type now in use. The natives say a village formerly stood here, but that many inhabitants died of smallpox "before the Russians came," and the survivors moved up the river and established the village of Belgo.

Several houses having been erected on this old village-site, permission for further excavations could be obtained only for a small area on the river bank. Here an ash-bed was found at the depth of sixteen inches ; it was three and a half feet across, five inches thick at the middle, and thinned to an edge on every side. It lay in a

saucer-shaped hole or fire-pit, the earth under the central portion having burned red to a further depth of three or four inches. Some fragments of pottery and a piece of slate rubbing-stone were found among the ashes. A foot from the edge of the fire-pit and lower than its bottom, or at a total depth of about two feet, was a large polishing or sharpening stone with a wide hollow in each face, and a narrow, deep groove alongside one of them.

Twenty versts below Verchne-Tombovsk, on the opposite side of the river, near Chanka, house-pits occur; high grass and weeds prevented their number being ascertained. There are also two earth mounds about three feet high, through one of which a trench was dug. The first foot excavated was of earth; this rested on a mass of birch-bark scraps among which were some pieces of wood, including parts of a spoon and of a small human effigy. It is customary among the Goldi, when making domestic articles of such material, to throw all the refuse in a heap near the house. The Russians sometimes take advantage of this custom to secure foundations for haystacks, increasing the elevation, if necessary, by piling on earth; such were the origin and use of these mounds.

At Onda, on the right bank of the Amur, is the first beach for several miles. Fragments of old pottery were scattered among the gravel on the shore. At the water's edge near the village were two small severed bushes or branches struck into the gravel, with the leaves still clinging to the twigs, though quite dry. Half-way up the beach were two more such bushes; at the top of the bank, in the edge of the brush, two more. They seemed to be intended to mark a pathway. Beyond the last two, in an open or cleared space of not more than a square yard, the end of a stout stick pushed or driven deep into the ground stood about thirty inches high. Stick and bushes all had little bunches of shavings tied to them. Some yards away, the end of a coffin was projecting from the low bank, the boards being but very slightly decayed. In it was a skeleton with shreds of decayed flesh still clinging to the bones. A modern Chinese or Japanese pipe and a copper vessel of a kind in common use for heating vodka were with the remains.

Nothing worthy of mention was found between here and the mouth of the Garoon, which comes in on the left some miles below.

A large island at the mouth of this stream causes it to discharge through two channels. On the left bank of the lower mouth are three house-pits. They are evidently quite recent, as the walls have suffered very little from erosion and the corner posts are still standing, solid and strong.

Just below middle Tombovsk notched sinkers were found on the beach near the bank; these may have belonged to any age. The Goldi use many such sinkers.

On the left bank, about three versts below Holbuka, at the lower end of a ridge a mile long, with low swampy land back of it, are twelve or fourteen house-pits. These are from 15 to 35 feet across, 2 to 4 feet deep, and 30 to 60 feet higher than the level of the beach — the first house-pits yet seen which are entirely above overflow. Pottery fragments also were found. This ridge may be the remains of an island; but it has every appearance of being due to the combined action of waves and winds.

On the right bank, just above the mouth of the Nyung-Nyu, is a house-pit; there may be others. Oftentimes, in the coarse, rank grass, which is from four to seven feet high on the flat lands, and stands as thick as timothy in a meadow, one discovers depressions only by falling or sliding into them; and there is no certain way of determining when the last one has been found. Immediately below Nyung-Nyu, at a single hut marked on charts as the village of that name, are several house-pits. They stand on a former bank of the Amur, with a gentle slope down to a slight bayou in front; but the site is now shut off from the water by a great sand ridge formed by the waves or wind, or both, since the village was settled. These are apparently the most ancient house-pits found, so far, on the trip; but surface changes are very rapid in the shifting soils and sands of the Amur valley.

On the right bank of the great river, five miles above lower Tombovsk, is a terrace rising thirty feet above overflow. It is level on top, half a mile long, and 500 feet wide at the broadest part. The river now flows 80 yards from its foot; the intervening space is a low meadow, built up by flood action on the former gravel beach. An extensive swamp stretches between the terrace and the mountains in the rear. Scattered about here are 48 house-pits, many of them 40 to 50 feet across and 3 to 5 feet deep.

Nearly half a mile below this terrace, separated from it by a little stream issuing from a swamp, is a small sand ridge, with the front nearly vertical from wave action during high water. It is probably the last remnant of an island, and will soon disappear. Between its base and the water extends a mass of gravel and bowlders, among which are thousands of pebbles of very hard blue slate and other stone suitable for implements ; most of these are of such shape and size that but little labor would have been required to convert them into tools or weapons adapted to primitive needs. Many pieces showed marks of work, among them small scrapers or celts of slate, now for the first time observed, and notched sinkers. Fragments of pottery also were found.

On the left bank of the Amur, nearly opposite this place, begins another terrace or ridge, thirty feet high, with a swamp back of it. All such ridges are similar in appearance to those found along lake margins, and are formed in the same manner. The Amur in many places has a width of two miles or more while within its banks, and during floods attains a velocity of eight or ten miles an hour. It is stated by persons familiar with the river at all seasons, that in places where there is a rocky bottom and consequently a greater incline, a rate of fifteen miles an hour is reached in the channel in time of highest spring floods. Such a torrent, when opposed by a strong wind, has a swell like the ocean. The water is then thick with sediment which is whirled into the eddies and piled in calmer places along the shores, forming great bars and tow-heads ; when the waters recede and these dry out, the winds carry the sand farther inland and in time large tracts may be covered by it to a considerable depth.

The ridge or dune last mentioned, whose lower point is about four miles above lower Tombovsk, is nearly three-fourths of a mile long, and contains house-pits along its entire length. There are more than a hundred from 30 to 50 feet across and up to 6 feet deep ; and many others which may be the sites of small huts or only large "borrow-pits." This village-site has not been inhabited within the memory of any one now living ; the natives have a tradition, however, that a large number of their people formerly lived on the spot.

At the lower end of this dune is a swale, separating it from a ridge 50 feet high, and sloping steeply on both sides. It is not composed of sand, like the other, but is a spur projecting from a high hill. In a line on its crest, which is only wide enough to afford them room, are five or six pits, scarcely of sufficient size to mark a hut-site, and at some distance from the river. They may be ancient traps or pit-falls.

On the same side, a mile below, is a lagoon of thirty or forty acres. A dune running out from a low hill of native soil nearly shuts off this lagoon from the river, leaving only a narrow outlet along the upper side. On the higher part of the dune and extending to the adjacent slope of the hill, is a collection of a dozen or more house-pits; they are from 30 to 60 feet above the water. This is known to be the site of a recent Goldi village. A native said he had been among the people at the time it was occupied, and that it was abandoned about twenty years before. In all essential respects it is the same as others examined.

Two miles above lower Tombovsk the Coolgoo river flows into the Amur; on the lower side of the junction are five or six house-pits.

Three versts below lower Tombovsk, on the same side, is a dune or ridge made by the river; it is on a foundation of sand and fine gravel containing slate pebbles. The latter were utilized to some extent for making implements, as unfinished or broken ones were found, along with fragments of pottery. A single house-pit was located behind the dune.

Seven versts below this, on the left, are several house-pits at the mouth of a small stream coming in from the Stone Man mountain. On top of this mountain are three great masses of rock, portions of dykes. They are visible for more than forty miles up or down the river. Tradition has it that in ages past a great Goldi chief went up here with his dog in pursuit of a bear. For some reason all were changed into stone. Viewed from a certain point the "man" has a striking resemblance to a statue in classic costume, while the "bear" looks very much like a sculpture of that animal gazing back over a pile of stones at his pursuer. The "dog" has no likeness to anything in particular. Many persons have

attempted to reach the top of the mountain where the figures are, but no one has ever succeeded.

Nothing was found between here and the mouth of the Sheleko river; on the upper side of this stream, at the site of an abandoned Russian village, are five house-pits. A small celt-scraper was found near by, on the beach.

Five versts farther down the Amur is the recently abandoned native village of Hotzko. Here, on both sides of a little stream, are house-pits, overgrown as in other places.

Four versts lower is another abandoned village-site. The land about it was cultivated for some years by Russian colonists who kept for their town its native name of Ca. Like most government colonies, this one soon perished, through agencies that seem inseparable from pauper, penal, or subsidized communities, and the only inhabitant now is a man who sells wood to the steamboats and cuts hay from the old clearing. There are about 80 house-pits here, besides numerous borrow-pits, so that at one time Ca must have boasted a considerable population. One of these pits, measuring 38 feet square between outside corners of the embankment, was trenched across. The ridge was of a clayey nature, proving it to be the mud plastering of the walls. Remains of a post were found going down into the earth below the wall. Farther within were four rows of smoke-blackened stones, forming three flues. Nothing was found in the central area except a few scattered potsherds; these, being near the surface, may have been gathered up in the earth forming the roof, and fallen in with it. On reaching the opposite side, three rows of stones were found, forming two flues. The distance from outside to outside of these stones was 34 feet, which thus represents the inner measurement of the house. Natives say that "a long time ago" (this means with them any time prior to the Russian occupancy) very many people lived here. A "great sickness" fell upon the community, from which most of them died. The survivors, as soon as they were able, moved away. The disease was probably smallpox; it raged in 1874 and again in 1879, and it is said that a similar but more deadly pestilence occurred many years ago throughout the valley. Search was made for a burial-place, but no signs of one could be discovered. Until recent years

the natives — or the Gilyaks, at least — did not inter the dead, but either burned them or laid them on the ground, scantily covered with old clothing, grass, and brush.

Near the upper end of an island whose head is twelve versts below Loocheeteska, is a single house-pit ; a verst farther are seven or eight. On the lower end of the island is the native village of Gassan, recently settled.

There is nothing else until the abandoned village of Ere, three versts below Seleonepar, is reached ; here are 18 or 20 house-pits, some of them 40 feet across and 4 feet deep. In two of them the stone-flue arrangement is quite easily traced, so they must be comparatively recent. At this place a grave was opened ; the body had been placed in a strong pine box and buried two feet deep. As the interment was of a late date, we did not disturb the remains.

From Seleonepar to the mouth of the Amur, only Gilyak villages are found. Above the Garoon river, all are Goldi ; while both tribes intermingle between these points.

From Ere, for a hundred miles or more, on the left side of the Amur is a succession of lagoons, swamps, creeks, bayous, and islands, stretching in some places fully twenty miles inland to the mountains, and all subject to frequent overflow. No one lives among them, and no one ventures into them except a few hunters, fishers, or hay cutters, and these for only a short time. On the right side there are many more bluffs than above Ere, and where good beaches or bottom lands occur there is usually some feature that makes residence unpleasant or inconvenient. Consequently, but few villages are to be found. Sometimes there is not a habitable spot for ten miles at a stretch.

Five miles above Nyata is a sand dune a few feet above overflow. House-pits extend fully a fourth of a mile along its top ; some of them are four feet deep. In two or three are remains of posts and poles, indicating possibly more modern huts on the older sites. A few cross-sections show, on account of the caving of the bank ; the construction is the same as in the house-pits which were excavated. Some potsherds, and a small pot nearly whole, were found on the shore.

About two and a half miles below Nyata, on a low bluff on the

lower side of a river bearing the same name, are ten house-pits, one of them fully 60 feet across.

Four miles below the mouth of Poolsa river are two pits on a bluff; and two versts below these, above overflow, are eight others.

From here to Sophisk there are only low islands and marshy shores or low bluffs. No spot exists where there is a safe mooring-place for river craft of any sort, or any site where a house could stand. The river divides into scores of channels so intricate and so continuously shifting in direction and depth that even steamboat pilots are often at a loss to know the proper course. The dense growth of willow and birch shuts off every view beyond the nearest shore. In a small boat one soon finds himself as bewildered and completely lost as if in a trackless mountain region, and can do nothing but drift with the current until he finds his bearings again.

Ten versts above Sophisk a headland juts out into the river, causing a violent whirlpool where waves toss a canoe about as in a storm at sea. On a narrow beach of sand behind this point lies a large boulder, probably carried thither by floating ice, as it is composed of material different from any natural formation in the vicinity. One side of this boulder has been dressed into a flat triangular surface, measuring nearly five feet on each edge. Near the apex a human face is formed by deeply incised lines; this is provided with a crown or head-dress. Below this, near the center of the smoothed surface, are two other heads, without covering. One has two parallel lines across the middle of the face. The other has V-shaped incisions extending from each nostril over the cheeks; from the glabella upward; and from the middle of each eye-brow outward. Farther down, across the lower part of the stone, are two rows of what seem to be only vertical lines; but they are probably remains of an inscription partially obliterated by sand scouring, as the stone is frequently under water. A priest long resident in Siberia and Manchuria says the whole drawing is the symbol of the Chinese Water God, or God of the Waters. There is certainly no place on the lower Amur where voyagers in small boats have more need of his good offices.

The maps show a native village where Sophisk stands; but there is now no indication that it ever existed.

From Sophisk to Marinsk only two places are fit for habitation. One is a long, high dune, separating Lake Lada from the river. Natives reported house-pits on this dune, but none could be found. The other locality is at the outlet of Lake Lada, two versts above Marinsk; there is a native village here, but no evidence of earlier occupancy.

Three versts below Marinsk, on an island of several thousand acres mostly subject to overflow, is a ridge or wind dune nearly a hundred feet high in places and covering an area of at least half a square mile. On the river side this is cut away to a bluff as steep as the character of the material (sand and silt) will permit. On the beach at the upper end of this bluff were some pottery fragments.

Passing from this point between low banks, no signs of life are to be observed until at the two native villages of Bulou, standing on little terraces below the outlet of a lake. There are no house-pits.

A mile below Mongol a small stream enters the Amur. On the lower side is a dry terrace, scattered about on which are many house-pits, some of them the largest yet observed. Two are in natural depressions resembling sinkholes but closed at the bottom. The slope of the terrace reaches down to a swale fifty yards wide, beyond which is a gravel ridge of the same breadth piled up by wave action.

Five miles below Kiama is a formation similar to that near Mongol. The natives report house-pits on the terrace and say the "old people" lived there. The stage of the water was such that the place could not be reached either on foot or by boat. There can be no doubt that both these places were abandoned because the formation of the gravel ridges shut the inhabitants off from the river.

At the Goldi village of Pooli, five versts above Bogorobski, on the right bank, are house-pits on a high terrace between two little streams. The present natives, who have lately moved down from the Garoon river, say a Gilyak village formerly stood here.

Scattered along from Bogorobski to a little stream less than half a mile above it, are between twenty and thirty house-pits. Much of the ground is cultivated. Careful search failed to reveal a single object in the vertical bank; but on the beach were pot-

sherds and many broken or unfinished small stone implements. Nearly all the latter are of slate, and are mostly celts or scrapers, though there were found in addition some side-notched sinkers; a sharpening stone; a fragmentary chipped flint, the only piece of this character discovered on the entire trip; and a stone triangular in section with the faces rubbed smooth and flat.

About half a mile below Bogorobski are seven house-pits 25 to 30 feet across, on a level terrace 50 or 60 feet above the water. The bank in front is very steep, this being the first group found which is at all difficult of access.

A mile farther down the river, on a terrace above high water, are five or six house-pits on the left, the first observed on this side below the Stone Man mountain. Natives all agree in the statement that there are not, and never have been, any permanent settlements on the east bank of the Amur from Bogorobski to "a long distance above Sophisk." In fact, until the point just described is reached there is no place on the mainland below Loocheeteska where one could be established.

On the lower side of Poolka river, entering the Amur at Greater Mehilovski, at the native village of the same name, are small house-pits on a terrace above overflow. In one, the posts and ground timbers are only partially decayed, so that it must have been abandoned within a few years.

Five versts below here is an abandoned village called Padt, as nearly as the name can be understood. In 1895, while the river was at flood stage, a terrible storm swept over this region. Many of the houses here were destroyed and others injured beyond repair. Such as remain are used as storage rooms for fishing appliances; but the place will never be occupied again so long as this catastrophe is remembered. Probably very many of the unoccupied villages owe their desertion to a similar cause.

Several house-pits are on a low bluff at the lower end of the village; bushes and small trees grow all around them, but none of any size are found in the depressions, a fact which indicates a rather late occupancy. In the woods near by are three houses or pens, each about the size of a dog kennel; each contained a small, erect, draped figure, like a standing doll, with various small articles lying

around it on the floor. In one was a copper pipe ; in all were broken china cups, fragments of cloth, and little utensils of bark and wood.

At the village of Akra, a short distance below Boskrecenskoe, is a river of the same name, about three versts in length, flowing out of a lagoon. There are a few house-pits at the mouth of the lagoon. It is reported that worked stones of some kind exist near the head of Akra river ; the natives say Russian explorers spent several days hunting for them some years ago, but found nothing.

Just above Douri are pits on overflow ground, and a little way below that village are others on a high terrace.

At Tiir three large dressed square stone columns, the sides covered with inscriptions, stood on the bluff where the church is built. One is now in Khabarovsk, another in Vladivostok. The third, by accident, fell into the river, which is 120 feet deep at the foot of the bluff, and was never recovered. The inscriptions have been deciphered, and, it is claimed, are to the effect that Genghis Khan extended his conquests to this point. It is reported that inscribed stones are standing about 70 versts up the Amgoon river, which joins the Amur opposite Tiir ; some Russians, presumably the same party that went to the head of Akra river, made a search but were unable to find them.

Many house-pits are on the gently-sloping hillside back of the village. A Gilyak, in leveling off a place to build on, found a Chinese brick a foot beneath the surface, and three feet below this a layer, scarcely decayed, of birch bark. This position is near the foot of a hill, however, so the "find" may not be of great age.

The remains of an extensive town are on the slope of the hill next below Tiir. There are several long streets, ditches for draining them, and square house-sites somewhat elevated. Tiles from roofs strew the ground in places. There is also an irregular mound of earth and stones, some of the latter dressed, which is supposed to be the remains of a "church." Much of it has been dug away by relic seekers, but nothing worthy of mention ever rewarded their search. There can be no question that a populous Chinese or Manchu settlement flourished here at some time in the distant past ; but nothing has been discovered on which to base a conjecture as to the period of its existence.

At Coo, 24 versts below Tiir, are about 20 house-pits above high water. One is nearly 70 feet across. A very old man said these "yama" looked "just so" when he was a boy, and that they marked the site of old-time Gilyak houses.

At Cheboc the Amur makes its final turn eastward to the sea. It sweeps at an acute angle around a granite bluff fifty feet high, whose top can be reached only by two or three paths eroded in crevices of the rock. On its undulating surface is a considerable Gilyak town, the only one found under such conditions. The excellent beach at the foot of the bluff is probably considered sufficient compensation for the difficulty of reaching the village. Among the present domiciles are several house-pits; but they may mark only older residences of the same people. At one of them the pine-trunk chimney is still standing. Some of the modern houses are in various stages of decay; in a short time, when all the woodwork shall have disappeared and the site become overgrown with bushes, they will have the same appearance as these seemingly ancient dwellings.

At this town thirteen bears were confined in pens, awaiting their turn to be sacrificed. There is a vast amount of ceremony connected with this religious rite, but the bears are eaten at the end.

From here to Nikolaevsk the entire country is unsuited for a life like that to which the natives incline. There are few spots where good landing places are to be had, and the ground is either rocky or swampy, so that excavation for house sites is not feasible. The few houses existing are in such situations that, if abandoned, not a trace of them could be found in another generation; they are intended mostly for temporary use. If there was a settlement in the vicinity of Nikolaevsk, all vestiges of it are now effaced.

At the village of Chabac, on the left bank, 35 versts below Nikolaevsk, on a gentle incline back of a bluff 40 feet high, are several house-pits. The area on which they are found contains only small scattering bushes, while all around are trees of moderate size. These house-pits are therefore probably recent.

About two miles below Chabac there is a gradual ascent from a small brook; it is broken in three or four places by small terraces, only a square rod or two at any point being level. On this slope

are 10 or 12 house-pits in a pine forest. A native said a Russian dug here in 1895 and found "some pots" — potsherds, probably. The same report is made in regard to the pits beyond Cape Puah, mentioned later.

On the right bank of the Amur there are no remains between Nikolaevsk and the native village of Goolyaka. On a little bluff at the lower end of this village several large houses are falling into ruins. Fifty years from now, only brush-covered depressions will be left to suggest their former existence.

Immediately below Goolyaka is a large bight into the head of which flows a small brook. On the upper side of this are two groups of house-pits. One, consisting of 11 depressions, extends about 250 yards along a bank subject to frequent overflow. Some flues are still to be seen among them, though no timbers now remain. The other group is back of this, on a terrace about 20 feet higher; there are at least 25 of the pits, which seem of greater age than those just mentioned. It is probable the ground on which the first group occurs was a beach at the time the upper group was occupied; being covered with silt at high water, it no longer afforded a convenient landing-place, and was utilized for residence purposes, with the abandonment of the older site.

On the lower side of the brook are six house-pits; these are in the forest, with pine trees fully two feet in diameter growing over them.

Along the lower side of Cape Vahs, which forms the eastern boundary of this bight, are 10 house-pits, apparently of recent origin. The earth on the inner side of the embankment has not yet attained its final slope.

Several miles farther down the Amur, nearly opposite the village of Nahleo, is a similar bight receiving a creek. On the upper side of this creek, in dense forest, are at least a dozen house-pits. Pines more than two feet in diameter are growing among them, the largest one observed standing on an embankment. Moss covers the ground to a depth of several inches. The pits extend fully a hundred yards back from the river bank. A short distance west of these, beyond a little ravine, are three house-pits. In one, the timbers are only partially decayed and the pine-trunk chimney is still standing.

There is nothing more to be found above the mouth of the river.

Outside of this, the coast along the Channel of Tartary is a succession of cliffs, with long capes or points of rock projecting at intervals. Occasionally, between these, are areas of beach or level lands. Nearly all of the latter, however, are inundated at the highest tides, and waves beat over them with great force. The bays are shallow and many of them are strewn with huge rocks carried in by the floating ice, so that only at high tide is it possible for even a canoe to venture on them with safety.

South of the river habitable spots cease within ten or twelve miles; there are some small fishing villages on this side, but they have scant room. No house-pits exist.

North of the river there are several good camping-places where the native or the Japanese fishermen spend the fishing season; but they leave before cold weather sets in. The largest is on the north side of Cape Puah, the last headland south of the promontory between Okhotsk sea and the Channel. Here is the finest beach on the coast, and as it is somewhat sheltered from the waves, permanent houses have been erected by some Gilyak families who spend the summer in them. In autumn they move across the peninsula to another cluster of houses, at some distance from the open water but on a narrow passage which cuts off a large marshy island, where they remain until the tides and storms of spring have spent their force.

Seven versts north of Cape Puah are eight or ten house-pits on a gravel ridge. The sea is cutting away the bank and has partially destroyed two of them. In two the timbers in part remain; in two others the flues are still to be seen. In all respects these houses were evidently like those now in use.

A verst farther are three house-pits, close to the beach, in a pine forest. The trees are small, apparently of less than a century's growth. A hundred yards back of them, on somewhat higher ground and in larger timber, are three other pits. One of the latter, not more than 30 feet across, is fully 6 feet deep. Evidently the ground in front, on which the young pines are growing, has been built up since the pits behind were in use, a condition similar to that below Goolyaka.

A mile north of the last mentioned remains are four house-pits from 20 to 25 feet in diameter and 3 to 4 feet deep, which hold their square shape better than any observed elsewhere. They are covered with a heavy growth of moss and peat, which has accumulated to a thickness of from two to three feet on the gravel bank in front of them.

Still north of here, in the Channel and in the Okhotsk sea, are islands on which are Gilyak villages, permanently occupied. Several attempts were made to reach them, but all failed on account of the rough weather ; and as the season for the autumn typhoon was now at hand, work had to be closed.

Conclusions

On the whole, there seems no reason for believing that a manner of living and a degree of culture materially different from those now prevailing in the region, have existed in the lower Amur valley since prehistoric times. Other, earlier, people there may have been, but they have left no traces. So far as ancient remains are concerned, an investigator finds nothing on which to establish a working theory as to migrations in any direction. All existing conditions, as they are disclosed by minute examination, are explicable by reference to known habits of the present inhabitants or to the Manchu whose possession of the region has lately terminated. With no mounds, no cairns, no shell-heaps, no burial-grounds, no evidence of agriculture, scarcely any stone implements or pottery, and with such specimens as exist in no wise distinctive — the archeologist stands helpless. The problems of migrations and of ethnic relations must be reached in some other way, if they are to be reached at all.

SAINT LOUIS, MO.

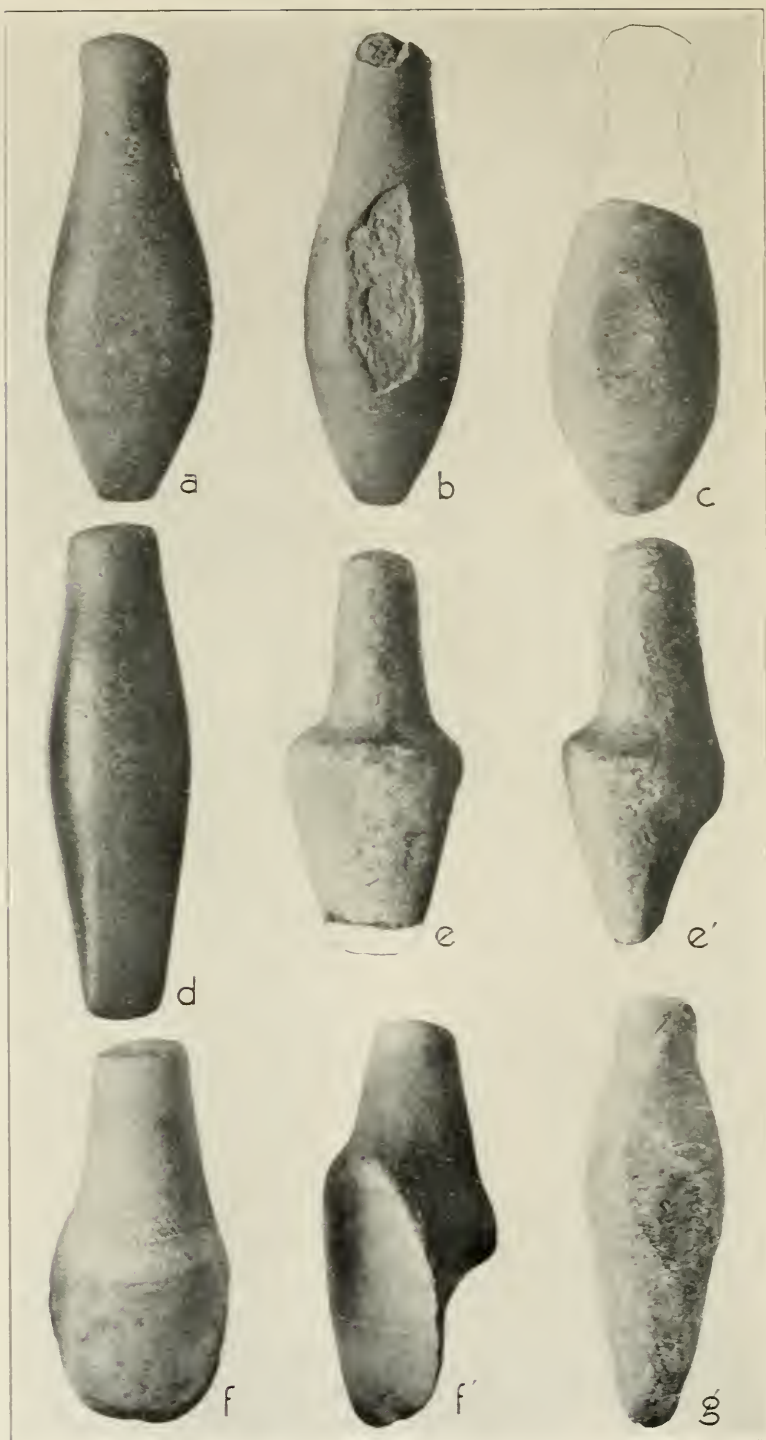
NOTEWORTHY ARCHEOLOGICAL SPECIMENS FROM LOWER COLUMBIA VALLEY

By HARLAN I. SMITH

In the summer of 1903 I examined the archeological collection of the Oregon Historical Society, in its museum in the City Hall at Portland. The collection contained unique sculptures as well as excellent types of rare objects supplementary to the material already forming a part of the collections in the American Museum of Natural History, as well as to the specimens included in the author's gatherings of that season in the field, and to those he had seen in the small collections of the region, and in the large museums of the East, such as those at Harvard, Yale, the University of Pennsylvania, and the National Museum at Washington. A loan of the original specimens for study in the Museum being greatly preferable to notes and sketches made on the spot, the Society, through its assistant secretary, Mr George H. Himes, courteously granted permission for their shipment to New York for study, photographing and casting. The Society also liberally granted the writer permission to take duplicate photographs and casts to supply the needs of other students and institutions, and otherwise to use them as might be deemed desirable in furthering the cause of ethnology. Prints from the negatives and casts from the molds of the specimens may now be obtained by students or institutions conducting researches on the North Pacific coast.

The sculptures, some of which are unique, are characteristic of the region of the lower Willamette. While not attempting to explain fully what these sculptures represent, they may be regarded as of great value in showing the character of the ancient art of that section.

Four specimens (pl. XXIII, *a-d*), which may be designated hand-hammer-adzes, have celtlike edges, but otherwise resemble cylindrical pestles with rather small knob-shaped tops. On each side may be noticed a facet or shallow pit.



STONE IMPLEMENTS FROM THE LOWER COLUMBIA VALLEY

a, b, c, d. Hand-hammer adzes. e-f. Hand-adzes [e-e', convex side and edge; f-f', concave side and edge]. g. Hand-hammer adz. (About $\frac{1}{2}$.)

The first hand-hammer-adze (*a*) resembles a plummet or cylindrical pestle, but it is not as thick as it is wide. On each side is a facet, apparently formed by using the object as a hammer for some soft-headed tool, such as a canoe-maker's wedge of wood or antler. The specimen has a knob-shaped top, a celtlike end with a rather straight edge, and is $8\frac{5}{16}$ inches (211 mm.) long. The bit is squarish and seems to have been reworked back from the edge for about one-fifth of the entire length. Where this reworked surface terminates abruptly there is a rise to the older surface which in certain lights appears to form a ridge, in others a groove. There are similar but less distinct signs that the surface of the bit had been once or twice previously reworked still farther back, nearly to the edges of the facets. The present specimen is made of a heavy bluish-gray stone resembling diorite. The surface is smooth, especially on the ground bevels that form the celtlike edge and on the facets. This specimen was found by Mrs A. Dwier of Mt Tabor, and in November, 1900, was presented to the museum of the Oregon Historical Society by the Oregon Alpine Club, of which she was a member. (Cat. no. 99, List no. 29; Am. Mus. Nat. Hist., Cast cat. no. 16/9855, Neg. no. 12.)

The second hand-hammer-adze (*b*) closely resembles the first, except that the facet and surrounding surface on one side have been broken out, apparently by the use of the specimen as a pounding instrument. The knob-shaped top likewise is broken, as if pounded in an effort to use the whole object as a chisel or wedge as well as for an adze and a hammer; it shows only one reworked surface, which extends back nearly to the edge of the remaining (hardly noticeable) facet. The second specimen is $8\frac{1}{2}$ inches (216 mm.) long, and is composed of rather lighter and warmer-colored stone than the first. The marks left in pecking it into shape have not been entirely effaced by polishing except on the rubbed bevels which form the celtlike edge. The implement just described was found by Mrs A. Dwier of Mt Tabor, representing the Oregon Alpine Club, and in November, 1900, it was loaned to the museum of the Oregon Historical Society. (Cat. no. 139, List no. 27; Am. Mus. Nat. Hist., Cast cat. no. 16/9853, Neg. no. 12.)

The third hand-hammer-adze (*c*) also very closely resembles the

first, except that the upper third is broken off and missing. The cutting edge is somewhat curved and is fractured twice on each side; the bit is oval in section and its sides, which bevel suddenly from the shaft, bulge so slightly that they seem concave and apparently are somewhat reworked; and the pits on both sides are pronounced and very smooth. The specimen, which is covered with yellow clay, was found by the Oregon Alpine Club, and in November, 1900, was deposited in the museum of the Oregon Historical Society. (Cat. no. 140, List no. 26; Am. Mus. Nat. Hist., Neg. no. 12. No cast.)

The fourth hand-hammer-adze (*d*) differs from the first three in that it has no top knob, facets, or reworked surface. The cutting edge is curved, convex on one side and less so on the other, giving the implement a form similar to that of some of the celts of the Mississippi valley. The surface is polished very smooth but still shows some of the marks of pecking by means of which the object was fashioned. The specimen is $8\frac{7}{8}$ inches (226 mm.) long and of a yellowish brown color. It was found in Washington county, Oregon, and was presented in November, 1900, to the museum of the Oregon Historical Society, by Mr A. H. Garrison of Hillsboro. (Cat. no. 29 (10029), List no. 28; Am. Mus. Nat. Hist., Cast cat. no. 16/9854, Neg. no. 12.)

There is a similar hand-hammer-adze in the collection of Mr D. W. Owen, of Kennewick, Washington, which he says is from Umatilla, Oregon. This specimen, so far as is known at present, indicates the eastern limit of distribution of this form.

The first specimen of this kind that came to my notice is in the James Terry collection in the American Museum of Natural History. It is catalogued under no. T-22774 as a "chisel stone, plummet shaped, Columbia City, Columbia river, Oregon . . . collected by Dr C. G. Capler on October 4, 1882." In general it (*g*) resembles the first hand-hammer-adze described in this paper, but the object as a whole is of a slightly different shape, the neck being short, the lateral bulge of the body high up near the neck, and the bit long and slender; one facet merges into the flat surface of the side, while the other is rough, apparently having been made by pecking. The entire surface from the top to the side is curved

continuously, the neck being formed by grooving the side edges and carrying the groove around nearly to the middle of the sides, but leaving a small surface standing out like a ridge connecting the top with the side. The bit is oval in cross-section and the celtlike edge is convex. On each face of the bit are four grooves, two on each side. They extend from points between the side and the edge, near the middle of the object, to the bevel for the blade. The grooves on the left part of each side extend farther to the right at the blade, causing the object to suggest a spiral or screw. The specimen is $8\frac{3}{8}$ inches (213 mm.) long, made of heavy stone of a light bluish-gray color; the surface is smooth in some places but shows marks of pecking in others.

Mr E. D. Zimmerman, of Philadelphia, informs me that in his private collection at Monterey, Pa., are six or seven hand-hammer-adzes. Judging from a photograph of a portion of the collection, these are of the type here described; one of them has a hat-shaped top; two at least are of the long-bitted variety.

In a photograph of the H. C. Stevens collection, recently offered for sale, may be seen at least three hand-hammer-adzes. One of these has a simple knob at the top; another, a hat-shaped top, bulging body, and long bit; while a third specimen, which appears to be of the type above described, has a long bit. The top is grooved around twice (cf. fig. 23 *e*, Mem. Am. Mus. Nat. Hist., iv) and on the side of the body shown in the photograph are two grooves which meet near the neck and then diverge, passing on each side of the spot where the facet is usually found, toward the edges of the side. No facet shows in the picture. The grooves just described give the object an appearance suggesting the lower side of a fish, the grooves indicating the gill slits.

Rev. Myron Eells probably refers to this type of object in his statement that "still another seems to have been a pestle at the handle end, and a blunt edge at the other."¹ He also doubtless alludes to this type when, referring to chisels and wedges, he states:

"Dr Rafferty has nine whole ones, or parts, about which there is no doubt. They mostly come from Sauvies Island, and are generally of hard

¹ *Smithsonian Report* for 1886, p. 286.

volcanic rock. They vary in weight from 2 pounds 14 ounces to 5 pounds 11 ounces; in length from $6\frac{1}{2}$ to $13\frac{3}{4}$ inches, and width from $2\frac{3}{4}$ to $3\frac{1}{2}$ inches, and in thickness from $2\frac{1}{8}$ to $2\frac{3}{4}$ inches. The edges are sharp, but the stone is thick a short distance from the edge. I know of none from other parts of Oregon."¹

The fact that some of the grooves on the Terry specimen looked as if recently made, taken in connection with its peculiar shape, led the writer at first to regard it as a questionable specimen, or at least as a "sport" not at all characteristic of the region. The number of similar specimens from a restricted area which have since come to the author's notice, however, prove that they constitute a type characteristic of the archeology of Willamette valley and vicinity.

The facets suggest that these specimens have been used as hammers. The writer found similar objects only a short distance to the northwest of Portland, from Copalis head southward to Shoalwater bay, Washington, which are of the same type as those known to have been used by canoe-makers as hammers, that were secured in 1898 by Dr Livingston Farrand among the Indians at Quinault. However, all the specimens found from Quinault to Shoalwater bay, so far as the author is aware, have plain ends instead of celtlike ends and may be called hand-hammers. Probably these hand-hammer-adzes were used by canoe-makers as combination hammers and adzes, the blows being delivered in such a way as to form the facets.

Two specimens (pl. XXIII, $e-e'$, $f-f'$), which may be designated hand-adzes, have celtlike ends and tops resembling pestles.

The first hand-adze (e , e') resembles in its upper portion a pestle, with a circular body, somewhat larger at the base than at the top, a disk-shaped striking-head, and a convex top. The surface of this portion of the object shows very slight scars or flutings, reminding one of the surface of a whittled stick or of a pared vegetable. The shaft expands suddenly into the disk-shaped striking-head, which in turn coalesces into a celtlike form projecting from the base of the upper portion. The line of demarkation between the upper (cylindrical) and the lower (celtlike) portions of the specimen is obscure except along part of one edge (e'). The celtlike

¹ Ibid., p. 288.

part is somewhat convex on one side (shown in *e*), concave on the other, especially at its base, but elliptical in cross-section; it tapers gradually from its large base toward what was once the cutting edge, but which is broken off. There are many signs of fluting on the convex face. The whole object is $6\frac{1}{8}$ inches (174 mm.) long. It is hard and heavy and appears to be basalt, although the surface, except where broken, is much weathered and resembles yellowish-gray chalk.

This hand-adze was found in the garden of Mr E. D. Nelson, Portland, Oregon, and was presented by him on February 5, 1903, to the Museum of the Oregon Historical Society. (Cat. no. 382 (380), List no. 35; Am. Mus. Nat. Hist., Cast cat. no. 16/9860, Neg. no. 1 (edge) and 3 (side).)

The second hand-adze (*f*, *f'*) resembles the first, but the top and the convex exterior of the bit present the natural surface of a water-worn pebble, while the remainder of the surface shows marks of pecking, by which process the object was fashioned from the pebble. In some places these marks are partially obliterated by grinding and polishing. There are no flutings on the surface. The disk shape of the striking-head shows plainly for fully half the circumference of the specimen, but the convex side of the celtlike part extends nearly half-way up the shaft of the pestle-like part. It is set, as it were, about half-way its length on the side of the lower half of the pestle-like part. The bit is lenticular in cross-section and oval in outline. The cutting edge is semicircular, sharp and beveled to an edge, chiefly from the concave side. The whole object is $7\frac{1}{4}$ inches (184 mm.) long and is made of heavy grayish or milky blue mottled stone, possibly slate.

This specimen was found on Columbia slough about ten miles below Portland and was deposited in the Museum of the Oregon Historical Society on Nov. 30, 1902. (Cat. no. 383, List no. 36; Am. Mus. of Nat. Hist., Cast cat. no. 16/9861, Neg. no. 1 (edge) and 3 (side).)

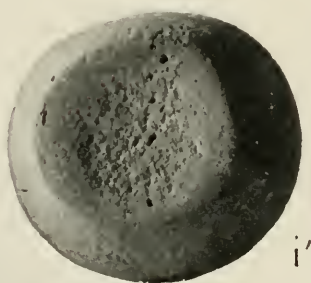
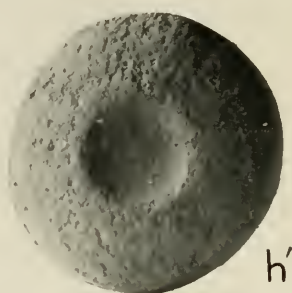
There is a specimen of this type (cat. no. 25) in the collection of Mr Louis O. Janeck, North Yakima, Washington. The natural surface of the pebble from which the implement was made shows on the ridge, or the part which corresponds to the sides of the

striking-head of the pestle-like section. The specimen is $6\frac{1}{2}$ inches (165 mm.) long and made of rock resembling diorite or diabase. (Am. Mus. Nat. Hist., Neg. cat. no. 44452 (2-1), 44503 (6-4).) It is perhaps the most nearly perfect form of this type ever seen by the writer. The upper end corresponds closely in form to a pestle, with a slight indication of a knob at the top, a flaring body, and a short striking-head the periphery of which extends as a ridge nearly, if not quite, around the specimen. The celtlike part is toward one edge, so that one side expands to meet the ridge above mentioned, forming a concavity; the other contracts to meet it, forming a convex sweep from the cutting edge to the beginning of the body of the pestle-like part. The specimen was found near the surface in an old burial ground of the Indians near the mouth of Yakima river on what is known as McNeals island. This specimen marks the present known eastern limit of the occurrence of the form. Mr Zimmerman has informed me that there are five or six specimens of this type in his collection.

The region north of Portland has yielded a pestle,¹ shaped like the upper part of the present specimens, which was used as a hammer, the blow being delivered with the end instead of with the side as in the previous case. From the same area come stone celts hafted in handles made of antler (see fig. 29 *d*, p. 164, Mem. Am. Mus. Nat. Hist., iv). From the region south of Portland are such celts, hafted by being lashed to stone handles (for specimens of such handles see Oreg. Hist. Soc. cat. no. 381, list 34, and the collections of the American Museum of Natural History, the United States National Museum, and the Peabody Museum of Harvard). It seems to the writer, therefore, that this type (the hand-adze) is a combination of the pestle-shaped hammer of the north and the stone celt-handle of the south with the celt of both regions, and that it resulted from a modification and combination of the same ideas that produced these neighboring forms with which it may be compared.

It is also interesting to compare this form with one from the gravel at Oregon bar, California, shown in plates II and VIII of the paper by Professor William H. Holmes on Auriferous Gravel

¹ See *American Anthropologist*, N. S., 1, fig. 10 *c*, p. 364, 1899.



SIDE AND BOTTOM VIEWS OF STONE WEIGHTS
(About $\frac{1}{4}$)

Man in California.¹ However, the present writer believes this form from the gravel is not closely related to the hand-adze herein considered.

Among fugitive specimens in small collections which the author saw in the field during 1903 were a few specimens of these two types (of most of which notes and sketches were made), but there is only one specimen of the hand-hammer-adze and none of the hand-adze in the American Museum of Natural History; consequently the photographs, casts, and notes of these objects are of special value in our researches and for exhibition purposes.

Two other specimens (pl. xxiv, *h, i*) may be called weights. Each of these is a disk-shaped object the top of which is provided with a perforated handle. These specimens are a new puzzle to all who have seen them.

The first weight (*h, h'*) is made of sandstone of a warm gray color and shows peck marks on many portions of the surface, these not having been obliterated by grinding. It is roughly the shape of a truncated cone or disk. The handle in the upper surface is formed by a hole made by drilling a tapering pit from each side. The under side of this handle shows no signs of wear. The top of the disk is somewhat dished for a portion of its circumference, including the pits and a space over the ends of the handle. Around the edge of the object is a wide shallow groove, and in the center of the convex base is a hollow about one-third the diameter of the base. This specimen is in the museum of the Oregon Historical Society, having been loaned by Mr Joseph Howell in 1902. (Cat. no. 267, List no. 9; Am. Mus. Nat. Hist., Cast cat. no. 16/9838, Neg. no. 27 (base) and 28 (side).) There is a specimen identical with this object, so far as can be determined from a photograph, in the Zimmerman collection.

The second weight (*i, i'*) likewise is made of sandstone of warm gray color; it shows peck marks only on the middle of the concave base and on portions of the edges. It is roughly of disk shape and has a slightly concave top with a shallow groove around the periphery just below the top, and two similar but smaller encircling grooves immediately above the base, leaving a bulging place, or

¹ *Smithsonian Report* for 1899.

ridge, around the middle, between the upper and the lower grooves. The margin of the concave base is flat and shows scratches resembling file marks. Similar scratches may be seen on portions of the periphery. On the top is a handle in the form of some animal, possibly a lizard. The mouth is indicated by an incision; the eyes if ever marked are now obliterated; there is an incision across the neck; the shoulders are raised and an incision extends across them in front of which are parallel longitudinal lines; the back is raised; two parallel incisions cross in front of the tail on which are five parallel longitudinal cuts. Under the belly is a hole made by a tapering pit cut from each side, oval or somewhat rectangular in form with rounded corners and bulging sides. There are no signs of wear on the upper part of this perforation. The specimen is in the museum of the Oregon Historical Society, having been loaned by Mrs Joseph Howell in 1902. (Cat. no. 266, List 10; Am. Mus. of Nat. Hist., Cast cat. no. 16/9839, Neg. no. 27 (base), and 28 (side).

These two weights were found in 1902 by Mrs Joseph Howell, Arthur, Oregon, on the shore of Sauvies island, from eight to ten miles below Portland, about eight or ten feet beneath the surface. Every season, beginning generally in April, the Columbia river rises considerably as the result of the melting snow; this causes a rise in the Willamette owing to the back water, and sometimes a large part of Sauvies island is covered. By the middle of July the surplus water begins to run out and in a month or two the river reaches its normal stage. While the water is rising the waves caused by the passage of steamboats continually wash the shores of the island, causing more or less earth to crumble off, thus dislodging or exposing Indian artifacts. These may frequently be found after the swollen stream has subsided. The objects above mentioned were uncovered in this way.

Mr Himes writes that he has seen Indians use grooved stones as sinkers or anchors, the weight being fastened to the bow of the canoe by a rope of hair or grass. He calls these two specimens "anchor stones or sinkers, of unusual shape."

The animal form and the technique of these objects, notably the tapering holes, seem to be representative of Indian art, but the en-

semble is a form new to Indian technology. The specimens remind us of the iron weights used for hitching horses. As there is no evidence to prove them of great age (the annual freshets being as able to deposit soil above Indian remains as to uncover them), the present objects may be Indian copies of the horse hitching-weight which they used for anchoring canoes or fishing apparatus. The specimens seem too fragile in the handle and too well made for use as anchors unless employed only ceremonially. These so-called weights may have been used in a game and they are suggestive at least of curling-stones. If they are copies of a form brought here in the early historic days from the South sea by Kanakas in the employ of the fur traders, or from China or Russia, the author has no proof of the fact. Dr Berthold Laufer informs me, however, that certain ancient Chinese bronze weights are of the form under discussion. After all, these objects may be of purely Indian origin, the specimens here figured being simply a new or unusual form.

The three types of artifacts dealt with in this paper have existed in collections, as previously stated, but with the exception of the above brief references by Rev. Myron Eells, so far as the writer is aware they have remained unnoticed in literature, being undescribed probably because considered exceptional objects rather than a characteristic part of the archeology of the region in which they were found. They are now thought, therefore, to be practically new to science and worthy of publication as types.

The work of the Oregon Historical Society in collecting and preserving material of this kind, together with full records as to the localities where it was found and the conditions surrounding it in situ, is certainly commendable. It would seem possible that the Society might obtain from the Lewis and Clark Exposition a large amount of valuable material for a great museum in Portland, thus causing the Exposition to serve practically, if not ideally, the purpose of furthering anthropological science and the museum idea as an educational factor in the great Northwest.

AMERICAN MUSEUM OF NATURAL HISTORY,
NEW YORK.

HELEN KELLER

By JOHN HITZ

Centuries ago, records tell us of highly educated persons who were either blind or deaf; but of educated blind deaf-mutes, up to the beginning of the nineteenth century no mention appears, and of those recorded, only one, and that one of the twentieth century, has achieved a collegiate degree, namely, Helen Keller. It remained for her indisputably to prove the fallacy of the traditional pedagogical limitations heretofore supposed to prevail in regard to the educational ability of those bereft of what so far have been considered the most essential organs of perception in attaining academic distinction.

Helen Adams Keller was born June 27, 1880, in Tuscumbia, Alabama. At the time of her birth, and during the first eighteen months of her life, she enjoyed the best of health, including full possession of her senses and infantile faculties. Her paternal ancestry embraced men of prominence in the South, whose lineage was of Swiss origin and noted for scholarly achievements, while maternally her ancestors were directly connected with the distinguished Adams and Everett families of New England whose ancestors in England, the MacAdams, claim to be descendants of the Saxon kings. When eighteen months of age (February, 1882) Helen had an acute attack of gastritis, followed by a malignant fever, which resulted in complete loss of hearing and sight. She disclaims having had any recollection on recovery except "confused memories" of what had preceded this illness; in fact, she insists on having remembered nothing, and having had only "vague impressions" of things that transpired, until five years later when she acquired a definite knowledge of words, and her active mind could clearly formulate ideas in the fixed matrix which spoken, written, and printed language provides. Previous to this achievement, during her prolonged period of speechlessness, Helen Keller's mental activity, it



HELEN KELLER

1, At Seven Years. 2, At Thirteen Years. 3, At Twenty-two Years. 4, Miss Keller and Dr Alexander Graham Bell. 5, Miss Sullivan Reading and Spelling at the same time into Miss Keller's hand. 6, In College Vestments.

would seem, sought expression in manifold, and especially in mischievous and combative, ways, such as unruly manifestations against the reprimands of her grandmother. In one well authenticated instance (after having discovered the function of a key) she quietly locked her mother in a pantry, where the latter was compelled to remain for an hour or more. Mrs Keller pounded on the door to no purpose; Helen seated on the floor outside, felt the jar of pounding, and laughed the while with great glee. This performance and its revelation of what seemed a singularly bad spirit convinced the parents that the child must be taught and made to behave, naturally so by some instructor specially qualified to undertake so difficult a task. On the occasion of Helen's father consulting Doctor Chisholm of Baltimore in regard to her case, the latter advised seeing Dr Alexander Graham Bell of Washington, who no doubt would be able to suggest how a suitable instructor might best be obtained. Doctor Bell's advice resulted eventually in securing the services of a graduate of the Perkins Institute for the Blind at South Boston, Miss Anne Mansfield Sullivan, whose eyesight had recently been restored by an operation. After a brief period of special preparation, the following March (1887) she entered upon what promised to be her life work, and developed into one of the most remarkable achievements in the history of pedagogy.

As can well be imagined, the case, owing to the extremely refractory spirit of the child at the time, presented to the teacher almost insurmountable obstacles, for little Helen resorted to the same tactics with Miss Sullivan that she had applied in her intercourse with her parents. But her teacher proved equal to the task. Inflexible determination, at times even physical force, yet always tempered with maternal affection and unwearying patience, coupled with an unshakable faith in the eventual success of her well-nigh inspired efforts, ultimately triumphed. After a voluntary isolation of herself and pupil in a cottage apart from the parental residence, devoted to "seven weeks of the hardest work she had ever done," this pedagogical Columbus was finally rewarded with the discovery of the realm within whose bounds lay untold happiness for her pupil and inexpressible satisfaction for herself. How this was brought about in part is told in Helen's own words, when, five years later, at

the age of thirteen, she tells in a brief autobiography of her being taught the manual or finger alphabet.

"I had not the least idea that my finger-play was the magical key which was to unlock my mind's prison door, and open wide the windows of my soul. I had learned eighteen or twenty words before that thought flashed into my mind as the sun breaks upon the sleeping world, and in that moment of illumination the secret of language was revealed to me, and I caught a glimpse of the beautiful country I was about to explore.

"Teacher had been trying all the morning to make me understand that the mug and the milk in the mug had different names; but I was very dull, and kept spelling 'milk' for mug, and 'mug' for milk, until teacher must have lost all hope of making me see my mistake. At last she got up, gave me the mug, and led me out of the door to the pump close by. Some one was pumping water, and as the cool fresh stream burst forth, teacher made me put my mug under the spout, and spelled w-a-t-e-r, water. That word startled my soul, and it awoke, full of the spirit of the morning, full of joyous, exultant song. Until that day my mind had been like a darkened chamber, waiting for words to enter and light the lamp, which is thought.

"I learned a great many words that day. I do not remember what they all were; but I do know that 'mother,' 'father,' and 'teacher' were among them. It would have been difficult to find a happier little child than I was that night as I lay in my crib and thought over the joy the day had brought me, and for the first time I longed for a new day to come. The next morning I awoke with joy in my heart. Everything I touched seemed to quiver with life. It was because I saw everything with the new, strange, beautiful sight which had come to me. I was never angry after that, because I understood what my friends said to me, and I was very busy learning many wonderful things. I was never still during the first glad days of my freedom. I was constantly spelling and acting out the words as I spelled them. I would run, jump, skip, and swing, no matter where I happened to be. Everything was budding and blossoming. The honeysuckle hung in long garlands deliciously fragrant, and the roses had never been so beautiful before. Teacher and I lived out of doors from morning until night, and I rejoiced greatly in the forgotten light and sunshine found again."

Within three months Helen had learned to use the stylus employed by the blind in writing, and had written her first letter (June, 1887). Acquisition of the power of reading readily the

embossed print familiar to the blind followed immediately. This was succeeded within three years by her acquiring (1890), through the special instruction of Miss Sarah Fuller, the ability to speak orally, or "talk with her mouth," as she designated speech, an achievement she had insisted on learning, and which afforded her unbounded delight. The art of using an ordinary typewriter had

helen write anna
 george will give
 helen will shoot
 simpson will give
 bird jack will give
 helen stick a candy
 doctor will give mil-
 dred medicine mother
 will make mildred
 new dress

FIG. 14. — Helen Keller's first composition.

meanwhile also been accomplished. Helen thus briefly relates how Miss Fuller taught her to speak :

"She passed my hand lightly over her face, and let me feel the position of her tongue and lips when she made a sound. I was eager to imitate every motion, and in an hour had learned six elements of speech : M. P. A. S. T. I. Miss Fuller gave me eleven lessons in all. I shall never forget the surprise and delight I felt when I uttered my first connected sentence, 'it is warm.' It is true, they were broken and stammering syllables ; but they were human speech. My soul came out of bondage and was reaching through those broken symbols of speech to all knowledge and all faith."

In this connection I would refer to some interesting recent observations made by an eminent scholar¹ of Vienna on the subject

¹ Prof. Dr W. Jerusalem in the *Oestreichische Rundschau*, 432-433, Wien, July 6, 1905.

of what another great man of science calls the "Universal Sense," the Sense of Touch :

"In concluding my treatise on Laura Bridgman fifteen years ago, I stated that the education and development of Laura Bridgman, and others who shared her lot, primarily teaches us that the scope of touch and motor sensations can solely serve the world as a gateway to mental conceptions. This assertion in the education of Marie Heurtin attains its final verification. In the case of Laura Bridgman, Helen Keller, and most others, we were unable definitely to ascertain the exact extent to which their infantile receptiveness may have contributed in arousing mental activity. In the case of Marie Heurtin, however, who was born sightless and deaf, there is no questioning the fact that the senses of sight and hearing have given rise to subconscious sensations. All that she has mentally achieved heretofore, and may hereafter achieve, must exclusively be ascribed to the sense of touch and to muscular motor sensation [*Muskel-Empfindungen*]. Marie Heurtin not only enables us conclusively to judge of the extent touch and motor sensations are capable of exercising — but more. We can no longer deny the fact that sense perceptions serve only as *Auslösende Reize* [stimulating solvents], by means of which the central power of our soul life is awakened. The sensual conceptions of thought as presented by Locke, and further elaborated by Lamettrie and Coniellac, and as latterly again asserted by prominent students of natural philosophy, are no longer tenable, confronted by the facts presented in Marie Heurtin's education. Whatever comes by external contact is only the *formulating* power of our Internal. From within we learn to know the world outwardly by adapting the latter to our organization. Hence we learn that it is not so essential whether these perceptions are solved by either sight, aural or touch sensation. Surely a something mysterious must exist within, qualified to give us a conception and understanding of the world.

"The teacher of Marie Heurtin had faith that such a mental or spiritual power existed within her animal-like pupil, and her faith has been confirmed."

All of the absolutely requisite appliances of intercourse with others, and the channels for readily acquiring the knowledge she so eagerly yearned to possess, were now made available to her, and having thus arrived at the portals of Helen Keller's virtual entrance into conscious life, I will leave the faithful and gifted teacher to say

how she proceeded to unfold a mind deprived of what are generally considered the two most essential media of brain perception.

“Language grows out of life, out of its needs and experiences, its joys and sorrows, its dreams and realities. At first my little pupil's mind was all but vacant. Up to the time when I began to teach her, she had no means of registering on its blank pages her childish impressions and observations. She had been living in a world she could not realize. Language and knowledge are like Siamese twins; they are indissolubly connected, they are interdependent. Good work in language presupposes and necessitates a real knowledge of things. As soon as my little pupil grasped the idea that everything had a name, and that by means of the manual alphabet these names could be transmitted from one to another, I proceeded to awaken her further interest in the objects whose names she learned to spell with such evident joy. I never taught language for the *purpose of teaching it*; but invariably *used* language as a medium for the conveyance of thought: thus the learning of language was coincident with the acquisition of knowledge. In order to use language intelligently, one must have something to talk about, and having something to talk about is the result of general culture; no amount of language training will enable our little children to use language with ease and fluency, unless they have something clearly in their minds which they wish to communicate or unless we succeed in awakening in them a desire to know what is in the minds of others. From the very first Helen was eager and enthusiastic in pursuit of knowledge.

“She had one advantage over ordinary children—nothing from without distracted her attention; so that each new thought made upon her mind a *distinct impression*, which was rarely forgotten. At first I did not attempt to confine my pupil to any systematic course of study. I felt that she would accomplish more if allowed to follow her own natural impulses. I always tried to find out what interested her most, and made that the starting point for the new lesson, whether or not it had any bearing on the lesson I had planned to teach, and her eager inquiries often led us far away from the subject with which we began.

“Helen acquired language in an objective way, by *practice and habit*, rather than by study of rules and definitions. Grammar with its puzzling array of classifications, nomenclatures and paradigms, was *wholly discarded* in her education. She learned language by being brought in contact with the living language itself; she was made to deal with it in everyday conversations, and in her books, and to turn it over in a variety of ways

until she had mastered its anatomy. I talked to her almost incessantly in her waking hours, and encouraged her to talk to me. I spelled into her hand a description of what was taking place around us; what I saw, what I was doing, what others were doing, anything, everything. I talked to her with my fingers as I should have talked to her with my mouth had she been a hearing child, and no doubt I talked much more with my fingers, and more constantly than I should have done with my mouth; for had she possessed the use of sight and hearing, she would have been less dependent on me for entertainment and instruction.

"Very early in her education I led her to observe and describe flowers and animals. A flower or an insect often furnished material for a long and interesting language lesson. I did not attempt to make these lessons in zoology and botany formally scientific. I introduced them early in her education for the purpose of cultivating her observation, furnishing themes for thought, and to fill her mind with beautiful pictures and inspiring ideals. Material for language lessons, knowledge of facts, and greater power of expression were ends obtained through these lessons; but were not the most important aims. . . .

"Books have played a very important part in Helen's education. As soon as she had learned the raised letters, I gave her books to read and I doubt very much if I shall be able to make you understand the importance and advantage that books have been to her in acquiring a command of idiomatic English; the advantage has certainly been incalculable. I am confident that the ease and fluency with which she uses language are in large part due to the fact that embossed books were placed in her hands as soon as she had learned the letters. She has, like many hearing persons, a natural aptitude for comprehending and using language as soon as it has been acquired. I think also much of the fluency with which she uses language is due to the fact that nearly every impression she receives *comes through the medium of language*. But after due allowance has been given to Helen's natural aptitude for acquiring language, and to the advantage resulting from her peculiar environment, I think we will still find that the constant companionship of good books has been of supreme importance in her education.

"In speaking of what books have been to her, Helen herself says: 'I read my first story on May-day, and ever since books and I have been loving friends and inseparable companions. They have been my faithful teacher in all that is good and beautiful; their pages have carried me back to ancient times and shown me Egypt, Greece, Rome; they have introduced me to Kings, Heroes, and Gods; and they have revealed to me great thoughts, great deeds.'"

Her teacher continues :

“It is not necessary that a child should understand every word in a book before he can read it with pleasure and profit. Indeed only such explanations should be given as are really essential. *Helen drank in language which she at first could not understand, and it remained in her mind until needed*, when it fitted itself naturally and easily into her conversation and compositions. Thus she drew her vocabulary from the best source, standard literature, and when the occasion came, she was able to use it without effort.”

This fully coincides with Dr A. Graham Bell's oft-expressed educational theorem : “*I would have a deaf child read books in order to learn language, instead of learning the language in order to read books*” — applicable equally well, it is claimed, to hearing children.

Miss Sullivan proceeds further :

“Helen has had the best and purest models in language constantly presented to her, and her conversation and her writings are unconscious reproductions of what she has read. Reading, I think, should be kept independent of the regular school exercises. Children should be encouraged to read for the pure delight of it. The attitude of the child towards his books should be that of unconscious receptivity. This means true reading : reading not only for entertainment, but for intellectual enrichment and enlargement. The great works of the imagination ought to become part of their lives, as they were once of the very substance of the men who wrote them. It is true that the more sensitive and imaginative the mind is that receives the thought-picture and images of literature, the nicer the vitality of feeling, the freshness and eagerness of interest, and the spiritual insight which proclaims the artistic temperament, and naturally she has a more active and intense joy in life simply *as* life, and in nature, books and people, than less gifted mortals. Her mind is so filled with the beautiful thoughts and ideals of the great poets, that nothing seems commonplace to her : for her imagination colors all life with its own rich hues.”

Here I would interject some observations relative to imagination in the education of the blind-deaf, ascribed to Doctor Dewey, the eminent psychologist of Chicago University, in which it is claimed that in certain phases of the imaginative faculty they *excel* all

others. So pronounced is this characteristic that the eminent authority mentioned places first in this respect the blind-deaf, the simply blind next, then normal men and women, and the deaf last of all.¹ Doctor Dewey cites the case of Helen Keller simply as typical rather than abnormal, and alludes to the "great danger of laying too much stress upon *sense* perception" in the education of children, adding:

"The wonderful and varied imagery which these minds in silence and darkness have created for themselves stands as a perpetual challenge to those teachers who are encouraging their pupils to revel in the endless panorama of sense perception. It is not necessary to make our pupils blind-deaf, but it may be well sometimes to require them to shut their eyes and ears, if need be, *and think*. I can conceive of no more important school exercise than that which will induce the child to bring into consciousness images of objects that are *not* present to the senses. This done again and again, and the dissociative process begins. Gradually each image becomes disengaged from the thing of sense that brought it into consciousness."

This verifies what the sculptor, Horatio Stone, said to me personally years ago, "A well defined ideal, after all, is solely the true," and we appreciate more fully the depths of thought which prompted the poet Clarence Stedman to close the beautiful poem he dedicated to Helen Keller, with the far-sighted words:

"Not as we see
Earth, sky, insensate forms ourselves,
Thou seest, but vision free
Thy fancy soars and delves,
Albeit no sounds to us relate
The wondrous things
Thy brave imaginings
Within their starry night create.

Pity thy unconfined
Clear spirit, whose enfranchised eyes
Use not their grosser sense?
Ah, no! thy bright intelligence
Hath its own Paradise,

¹ *Arkansas Optic*, March 3d, 1900.

A realm wherein to hear and see
Things hidden from our kind.
Not thou, not thou, 'tis we
Are deaf, are dumb, are blind ! ”

At this period, when thirteen years of age, it was that Helen Keller, under the wise guidance of Miss Sullivan aided by special teachers, really entered upon a regular system of academic training. How she regarded this step in her life, the entry she made in her diary at the time, speaks for itself :

DEAR DIARY : “ To-day is the thirteenth of October 1893, and I have some pleasant news for you. My studies began to-day, and I am very, very glad. I study arithmetic, Latin, history, geography and literature. I am glad, because I want to learn more and more about everything in this beautiful wonderful world. Every day I find how little I know : for I catch glimpses on all sides of treasures of history, language and science, a beautiful world of knowledge, and I long to see everything, know everything, and learn everything. I do not feel discouraged when I think how much I have to learn, because I know the dear Lord has given me an eternity in which to learn it.

“ I used to say I did not like arithmetic very well, but now I have changed my mind ! for I see what a good, useful study it is. It helps me to think clearly and logically and strengthens my mind in many ways. I try to be very, very calm and patient now when the examples seem very hard, but sometimes in spite of my great effort to keep my mind in the right place, it will flutter like a little bird in a cage and try to escape into the pleasant sunshine ; for nice and useful as arithmetic is, it is not as interesting to me as a beautiful poem, or a lovely story.

“ Latin is a very beautiful language, and I hope I shall be able to speak and read much of it when I go home next spring. Already I begin to feel better acquainted with the grand old heroes of Rome since I know a little of the language in which they thought and talked so long ago.”

But, in the words of her faithful teacher, Miss Sullivan,

“ It is Helen's loving and sympathetic heart rather than her bright intellect which endears her to everybody with whom she comes in contact. She impresses me every day as being the happiest child in the world, and so it is a special privilege to be with her. The spirit of love and joyousness seems never to leave her. May it ever be so. It is beautiful

to think of a nature so gentle, pure and loving as hers ; it is pleasant also to think she will ever see only the best side of every human being. While near her the roughest man is all gentleness, all pity ; not for the world would he have her know that he is aught but good and kind to every one. So we see, pathetic as Helen's life must always seem to those who enjoy the blessings of sight and hearing, that it is nevertheless full of brightness, cheer, courage and hope."

In October, 1894, Helen Keller attended a term at a select school for the deaf in New York City, mainly for the purpose of perfecting her articulation, and to continue her study of Latin, French, and German. In 1896 in Cambridge she entered upon her preparatory studies for admission to Radcliffe College (the Harvard Annex for women), which she resolutely determined to achieve if possible. Of her studies and examination there, Mr Arthur Gilman, whose school she attended, speaks as follows :

" She was successful in every subject, and took ' honors ' in English and German. I think that I may say that no candidate in Harvard or Radcliffe was graded higher than Helen in English. The result is remarkable, especially when we consider that Helen has been studying on strictly College preparatory lines for *one year* only. She had had long and careful instruction, it is true, and she had always the loving ministrations of Miss Sullivan in addition to the inestimable advantage of a concentration that the rest of us never know. No man or woman has ever in my experience got ready for these examinations in so brief a time. How has it been accomplished ? By a union of patience, determination and affection, with the foundation of an uncommon brain."

The major portion of the time between this and the final examination which resulted (July 4th, 1899) in her being formally admitted to the Freshman class, was devoted to study under a special instructor, Mr Merton S. Keith, of Cambridge, Mass., assisted by Miss Sullivan. Of her labors during this period, Mr Keith says :

" It is idle to inquire whether Miss Keller's achievements are due to innate abilities or qualities, or to expert teaching. In cases like Miss Keller's it seems to me that good teaching and proper environment are even more necessary than in the case of the common student. More pitfalls have been in her way, and careful guidance has often been absolutely necessary.

“With all her innate and acquired powers of mind, she could not have attained her present eminence, had it not been for the moral, or quasi-moral qualities of her soul. Ambition, undaunted courage, defiance of, or glorying over obstacles, obstinate refusal to admit defeat, hope rising from incipient despair, self-respect and self-trust, patience and faith in planning or working, or waiting for the consummation of effort,—these constitute her armor of victory.

“Great as have been her achievements, equal results are, I believe, within the reach of many others. The merely intellectual qualities needed are not rare; it is their combination with moral power that produces the seemingly magic results. Ambition stimulated by obstacles, persistent will and patience, explain many of the wonders of Helen Keller’s success.”

Of Mr Keith’s instruction, Helen says :

“I have enjoyed my work with Mr Keith more than I can express in words. He has done more than any of my teachers except Miss Sullivan (although she seems more like a part of myself than a teacher), to store my mind with rich treasures of knowledge, which shall be a joy to me as long as I live. He made all my studies interesting, even mathematics. He kept my mind alert and eager, and trained to reason clearly, and to seek conclusions calmly and logically instead of jumping wildly into space, as it were, and arriving nowhere. He was always gentle and forbearing no matter how dull I might be, and believe me, my stupidity would often have exhausted the patience of that phenomenally patient man, Job.”

In a letter to me, speaking of the examination admitting her to Radcliffe, she says :

“It is an unspeakable relief to know that I have passed the examination with credit. But what I consider my crown of success is the happiness and pleasure that my victory has brought to my dear teacher. Indeed, I feel that the success is her’s more than mine; for she is my constant inspiration.”

In the college classrooms Miss Keller required the constant presence of Miss Sullivan, who could spell into her hand with ample rapidity all that the instructors read or spoke. Should a professor ask questions, Miss Sullivan repeated audibly whatever Miss Keller would answer, or, when allowed, she handed in after recitations the latter’s typewritten answers.

The spirit which animated Miss Keller in her studies is briefly and best told by her in a letter to Professor Copeland of the Harvard faculty :

"I am resolved to be myself, and to write my own thoughts when I have any. When I have written something that seems to be fresh and spontaneous and worthy of your criticisms, I will bring it to you, if I may, and if you think it good, I shall be happy; but if your verdict is unfavorable, I shall *try again, and yet again* until I have succeeded in pleasing you. . . ."

It would be deeply interesting, did time allow, could we follow Miss Keller during her career at college, to observe the unvanquishable attitude she persistently assumed in overcoming the manifold difficulties that confronted her, but I must desist and simply state that I personally attended her graduation from Radcliffe, at Cambridge, on the 28th of June, 1904 (one day after the twenty-fourth anniversary of her birth), and witnessed, amidst continuous applause, the award to her and thirty-seven classmates of the degree of Bachelor of Arts, coupled in her case with the distinction "*cum laude*," and the additional words in Latin inscribed on her diploma: "Not only approved in the whole academic course, but excellent in English letters." The ovation given her at the time reflected credit alike on herself and the vast audience in attendance.

At a recent alumnæ meeting, among other things she modestly stated:

"You will not misunderstand me if I say that much of my life in college has been tedious; slowness was unavoidable in the manual labor of Miss Sullivan's task and mine, . . . In study I have fallen heir to no end of interest and delight. How eagerly I look forward to a new book! As I read, there is a light before me; it is the radiance of poetry. . . . College has breathed new life into my mind, given me new ideas of things, a perception of new truths, and new aspects of the old ones. I grow stronger in my conviction that there is nothing good or right which we cannot accomplish if we have the will to strive. The assured reality and nearness of the end of my schooldays fills me with bright anticipations. The doors of the great world are flung open before me, and a light shines upon me, the light kindled by thought that there is something for me to do beyond the threshold.

"And indeed, for all earnest college graduates there is a great work in the world—work that can be done in sweet, unaggressive ways. There are harsh customs to be made sweet with love; hearts in which a kind, tolerant brotherly love must be awakened; time-hallowed prejudices

that must be overthrown. One evil that must be checked is the ignorance of the *learned* who have never learned the simple, honest language of the heart, which is the most vital of all languages, and is more satisfying than all the Greek and Latin ever written. Thus I have groped my way through college, reaching out on the dark pathway for wisdom, for friendship, and for work. I have found much work, and abundant friendship, and a little wisdom, and I ask for no other blessedness."

Her exceptional achievement is well summarized by Mr John A. Macy, the able editor of her invaluable volume, *The Story of My Life*, dedicated "to ALEXANDER GRAHAM BELL, who has taught the Deaf to speak, and enabled the listening ear to hear speech from the Atlantic to the Rockies."

Mr Macy says :

"The result of her work is to set a new standard for the deaf, and to raise a standard high, if not new, for the whole world of men who work and pray. She has moved the hearts of all nations to an enduring sympathy for the afflicted, and to a new belief in the capacity for the blind and the deaf to be uplifted. Thereby is Helen Keller's service great unto those who see, and those who are blind, to those who hear, and those whose ears hear not.

"It is safe to predict that her work will go further than the goal which is marked by her graduation. This, all who know her well will readily affirm."

As to her future occupation, the public may rest assured it will, in substance, consist of *service to her fellow man*. "Opportunities to serve others," she says herself, "offer themselves constantly ; it bewilders me to think of the countless tasks that may be mine." To prove helpful she realizes the imperative necessity of continuing to improve her mind by engaging in research and keeping well abreast of the best wisdom of the age. Writing will, no doubt, occupy a large portion of her time, and to judge from what has so far emanated from her pen, future productions from the same source will prove interesting, uplifting, and of enduring service.

Let me now quote a few of the many striking pen pictures Miss Keller has already given us, relate several of many incidents, and state her creed.

Speaking of one of her favorite resorts near her home in Ala-

bama, she says in one of her earliest letters: "The mountains are crowding round the springs to look at their own beautiful reflections."

Being asked for a sentiment, she said:

"Knowledge is happiness. . . . Knowledge of the thoughts and deeds that have marked man's progress is to feel the great heart-throbs of humanity through centuries, and if one does not feel in these pulsations a heavenward striving, one must indeed be deaf to the wonderful harmonies of life."

Literature is Miss Keller's "Utopia." She says:

"Here I am not disfranchised. No barrier of the senses shuts me out from the sweet, gracious discourse of my book-friends: they talk to me without embarrassment or awkwardness. The things I have learned, and the things I have been taught, seem of ridiculously little import, compared with *their* large loves and heavenly charities."

Again:

"Be of good cheer. Do not think of today's failures, but of the success that may come tomorrow.

"Remember no effort that we make to attain something beautiful is ever lost. Sometime, somewhere, somehow we shall find that which we seek."

At another time she says:

"It is not always needful for Truth to take a definite shape; enough, if it hovers about us like a spirit wafted through the air like the sound of a bell, grave and kindly."

Speaking of a visit made to Lexington, she wrote:

"As we rode along we could see the forest monuments bend their proud forms to listen to the little children of the woodlands whispering their secrets. The anemone, the wild violets, the hepatica and the funny little curled-up ferns all peeped out at us from beneath their brown leaves."

In another letter after leaving the country to reside in Boston, she thus expresses herself about the public park, or Common:

"Somehow after the great fields and pastures, and lofty pinegroves of the country, the scene here seems shut in and conventional. Even the

trees seem citified and self-conscious. Indeed I doubt if they are on speaking terms with their country cousins! I cannot help feeling sorry for these trees with all their fashionable airs. They are like the people whom they see every day, who prefer the crowded city to the quiet and freedom of the country. They do not even suspect how circumscribed their lives are. They look down pityingly on the country folk who have never had an opportunity to see the great world. O my, if they only realized their limitations, they would flee for their lives to the woods and fields!"

At another time, in speaking of Autumn, she says:

"The forest trees have donned
Their gorgeous Autumn tapestries
. . . A mysterious hand is silently stripping the trees,
And with rustle and whirr the leaves descend,
And like little frightened birds,
Lie trembling on the ground."

One of her letters closes with: "I must go to bed, for Morpheus has touched my eyelids with his golden wand."

In giving Doctor Bell an account of one of her dreams, after describing a curious house, and saying that the people in it wore breastpins on their shoes, bangles on their heads, and rings on their wrists, Doctor Bell queried: "Do you mean you saw them with your eyes?" She replied, "Yes."

How Miss Keller looks upon her limitations, she thus expresses herself to me in a recent letter:

"When I think of the truths which have been brought within my reach, I am strong and full of joy. I am no longer deaf and blind; for with my spirit I see the glory of the all-perfect that lies beyond the physical sight, and hear the triumphant song of love which transcends the tumult of this world. What appears to be my affliction is due to the obscurity, yea, the darkness occasioned by terrestrial things. I cannot help smiling sometimes at the arrogance of those who think they alone possess the earth; they see only shadows and know only in part. They little dream that the soul is the only reality, the life, the power that makes harmony out of discord, completeness out of incompleteness."

Hellen Keller's rules of life and creed may best be summed up as noted in a diary entry made October 18, 1894, at the age of fourteen years, when she says:

“ I find that I have four things to learn in my school life, and indeed in life : To think clearly without hurry or confusion, to love everybody sincerely, to act in everything with the highest motives, and to trust in dear God unhesitatingly.”

And in her latest work, *Optimism*, she sums up her creed as follows :

“ I believe in God, I believe in man, I believe in the power of the spirit. I believe it is a sacred duty to encourage ourselves and others : to hold the tongue from any unhappy word against God's world, because no man has any right to complain of a universe which God made good, and which thousands of men have striven to keep good. I believe that we should so act that we may draw nearer and more near the age when no man shall live at his ease while another suffers.”

VOLTA BUREAU,
WASHINGTON, D. C.

SOME NOTES ON ANTHROPOLOGY AND ARCHEOLOGY

By CHARLES PEABODY

The inverse of a genealogical tree is or would be interesting ; a single ancestral pair increases and multiplies, as is said, like a green bay tree, but one may also gather together from the various branches ; our green bay tree may concentrate its laurel crowns from branch and tip upon the trunk. If from the Greek unique science of *φιλοσοφία* have sprung all sciences and all arts, until their name is legion and their titles sometimes limited to the understanding of one man, there is yet a centripetal force urging the massing and arranging of many under one umbrageous whole — Anthropology. It is of this *rapprochement*, partly artificial, partly natural, of certain sciences and arts that a word of explanation may be fitting and seasonable.

Anthropology and archeology are sciences ; they are not arts : to correlate the facts set forth by them, to draw inferences and establish other facts, is an art, yet one may be a capital anthropologist or archeologist and no artist at all ; one may write a Teutonic Ph.D. thesis brim full of facts and be quite unable to make these facts tell their story. It is well not to confuse the subject-matter with the study of it. Archeology *studies* art ; not, therefore, *is* it an art.

Considering for a moment anthropology and archeology as kindred or step-kindred sciences, it will be interesting to make a sort of parallel column record. It may be understood that a certain gulf has existed between the anthropologists and the archeologists, especially the classical archeologists, of America. Some reasons for this unhappy chasm will appear during the discussion.

It is well for gods and men to define terms. Hence Anthropology wishes, cries for definition ; our inverted figure of the green bay tree's trunk sheltering the branches thereof now becomes pertinent. One may define anthropology axiomatically as a whole in terms of its parts. In order to do this properly it is well to hie one to au-

thority and to quote him.¹ "Anthropology is in fact a group of sciences. There is . . . physical anthropology . . . including anthropometry and craniology, and mainly based upon anatomy and physiology [somatology in other words]. There is comparative anthropology, which deals with the zoölogical position of mankind. There is prehistoric archæology, which . . . has to seek the aid of the geologist and the metallurgist. There is psychology, which comprehends the whole operations of [the] mental faculties. There is linguistics, which traces the history of human language. [I need not refer here to special philology, epigraphy, paleography, and phonetics.] There is folk-lore, which investigates man's traditions, customs, and beliefs [of course demonology and mythology]. There are ethnography, which describes the races of mankind and ethnology which differentiates between them, both closely connected with geographical science. There is sociology, which applies the learning accumulated in all the other branches of anthropology to man's relation to his fellows, and requires the coöperation of the statistician and the economist."

To define archeology, one may turn to the title-page of the first number² of the *American Journal of Archæology*; we find this superscription directly followed by the words, "For the study of the Monuments of Antiquity and of the Middle Ages." The contrast is striking and instructive. Men who were accustomed to minute and painstaking effort directed with convergent force toward the elucidation of some one circumscribed field of study, toward the driving of the drill-point of research one millimeter deeper into the rock of the ancient unknown, men who had been thus for years delving and probing under the definite ægis of archeology, bounded by but not identified with philology and history — such men were hardly ready to sink the individuality of themselves and their science in this new, swelling, indiscriminate tide of anthropology.

On the other hand, the young, constructive, synthetic scholar says (again with Brabrook), "the grandeur and comprehensiveness

¹ See address of E. W. Brabrook, Pres. Sec. Anthropology, Rep. Sixty-eighth Meeting Brit. Assoc. Adv. Sci., 1898, p. 999-1010, London, 1899; also in *Smithsonian Report*, 1898, p. 621 ff, 1899.

² Vol. I., no. 1, Jan., 1885.

of the subject are among its attractions. The old saying, 'I am a man, and therefore I think nothing human to be foreign to me,' expresses the ground upon which the anthropological sciences claim from us a special attention." He feels hampered, harnessed, and harassed in the fetters of one single digging, in the clutches of one single science. To hook out a fact and hang it on the line to dry, and then allow others to coördinate it with its fellows, seems old foggy and stupid when wide realms of research and comparison lie open; in these we may work not only with the spade, but with the plough, the harrow, the reaper, and the winnowing machine.

The cumbersomeness of a definition of anthropology such as that in the nut-shell given above has been felt, and Professor Putnam, in consonance with his own simplicity, prefers "Man and his Works." While easier to handle and less subject to scoffing from those who are not "-ologiolators," it is yet too comprehensive, and the adherents of the older smaller but respectable sciences may retort that we can do away with all other names by inventing one new one — and using three only — making all knowledge and activities, natural and supernatural, come under Theology, Anthropology, and Pragmatology. The name is or is not an asset to anthropologists according to their constructive or dispersive point of view, but it was not calculated to win the affections of those whom it proposed to swallow up. For at the time when this capacious science arose, Archeology laid hold of the skirts of Literature; while distinct from the printed word, it yet was its handmaiden. The illustrating of Greek and Latin texts, the unearthing of the steps up which the Panathenaic Procession took its way, the study of that romantic procession itself in the marbles of the Parthenon; still more, the corroboration and strengthening of biblical positions through biblical and oriental substrata — all this tended toward the recognition of archeology as an art to be wielded by artists, literary, dialectic, or homiletic.

Anthropology might well be a bugaboo to frighten such. At the very beginning arises the sublime Boucher de Perthes;¹ hear him bring constructive reasoning and sound science into his arche-

¹ Cf. A. Thieullen, *Hommage à Boucher de Perthes*, Paris, 1904, pp. 21 ff.

ology: "La première chose à faire, avant la discussion théorique, écrivait-il, c'est d'en venir à une vérification matérielle. Malheureusement, c'est ce qu'on ne fait presque jamais, et l'on préfère écrire pendant huit jours pour démontrer qu'une chose ne peut pas être, que d'employer une heure à se convaincre qu'elle est. . . . Les hommes pratiques . . . en avaient peur, ils craignaient de se rendre complices de se qu'ils appelaient une hérésie."

Then we have that most upsetting of beasts, the *Pithecanthropus erectus* — evolution and its train. Again hark the sound of criminal anthropology; listen to Topinard's invitation to the columns of the *Revue d'Anthropologie*:¹ "Nous accueillerons avec plaisir dans les colonnes de cette Revue les communications . . . ayant trait, non à la science toute entière de la criminalité . . . mais à la partie . . . qui traite des types de criminels, si types il y a . . . ; surtout lorsque seront mises en usages les méthodes descriptives et anthropométriques précises . . . les méthodes rigoureuses d'analyse et de synthèse que cette Revue préconise." This suggests association with the Bertillon system of measurements, whereby one may be literally hung up by the thumb; handwriting experts and all their successes and failures. Under the same broad double or rather hierarchical wings may be grouped the following unified subjects: A fiercely scientific article on the inoffensive pretzel;² such a title as "Das Fehlergesetz und seine Verallgemeinerungen durch Fechner und Pearson in ihrer Tragweite für Anthropologie";³ "Craniologie pathologique de monstre exencéphalien";⁴ "Climat de l'époque quaternaire";⁵ "A Mazahua catechism in Testera-Amerind hieroglyphics."⁶

To offset all this, the anthropologists, accustomed to gamboling lamb-like among pastures with no wire fences, shy at the narrow critical work of the old school of archeologists. The ditty the American students used to sing about Dörfeld, the greatest of

¹ Cf. *Revue d'Anthropologie*, 1887, p. 690.

² Cf. M. Höfler, Bretzelgebäck, *Archiv f. Anthropologie*, n. f., III (XXXI), 2, pp. 94 ff.

³ Cf. Ranke and Greiner, *Archiv f. Anthropologie*, n. f., II (XXX), 1904, pp. 295 ff.

⁴ M. Giraudeau, *Bull. Société d'Anthropologie de Paris*, 2^e ser., 7, 1872, p. 648.

⁵ Cf. G. de Mortillet, *ibid.*, 1874, p. 391.

⁶ Cf. N. León, *American Anthropologist*, n. s., II, p. 722 ff., 1900.

classical archeologists, illustrates this. The tune of Jonah and the whale fitted well the line, "Dörpfeld and the Riegellöcher." This sobriquet came from the anxious care with which Dörpfeld bases his reconstructions of both archeology and monuments on bolt-holes, foot-marks, and other minutest details. So too the exhaustion of all the methods, the invocation of the whole "barbara celarent" quatrain to determine the exact polygonal requirements of the Greek chlamys, seem to some to resemble the travail preceding the birth of a mouse. They may say with some reason, "Why such *Sturm und Drang* to secure metriculous accuracy when you can't even spell your own name?" We find "archaiology" (Grieb's English-German Dictionary), "archæology," and "archeology"; we find the diphthong *æ* and the two letters separate, and vigorous defenders of idiosyncratic spellings.

The anthropologists perhaps may look upon the cut-and-dried methods and dry-as-dust results with some contempt and deplore the extent to which German pedagogism may go. They point with some humor to the little torso in the Acropolis museum to which a head was added after careful study of the appropriate measurements of each, but which later was rudely decapitated and provided with a second head; this proved its appropriateness by quite upsetting the previous measurements.

The scope then, the methods, and the results, were such that at the beginning, in this country at any rate, Archeology could say of Anthropology that it was a sort of composite photograph, an impressionistic congeries of everything and everybody, loose and scattered application. Anthropology could say of Archeology that it was shackled to tradition, literature, and Teutonism; that it piled up solid grains of sand with little care as to the form or constancy which the heap assumed. The gulf thus created had yet features that caused it to yawn further. There is a certain jealousy between Art and Science. Here we shift our ground and the distrust of Anthropology and Archeology, one for the other, is quite the inverse of what we have just heard.

Classical archeology is a science dealing largely with the fine arts; no one should attempt Greek criticism save him who understands the Greeks, and the Greeks were artists. Outside of epig-

raphy and topography, classical archeologists concern themselves mostly with architecture and sculpture. The man who scans the Riegellöcher, no matter what else he forgets, ought never to forget that every discovery is a stone in a structure of which beauty is the inspiration — beauty, expressed as well as the artist inspired by beauty could express it. Every thesis written on a pair of broken stones should point by synecdoche to a whole of beautiful completion, a sum total of line, form, and proportion Hellenic in magnificence, or should point by metonymy to a certain stage in the progress of the expression of the beautiful among the Greeks. The pride of the broader minded archeologist, especially now-a-days, is that in sculpture, painting, numismatics, gems, basilicas, cathedrals, what you please, the terminus *ad quem* and *a quo* is beauty and the expression of the ideas of beauty.

Enters Anthropology, claiming authority over all human activities, threatening to absorb the beautiful in comparative statements of ethnological religions and conceptions, to drag the Hermes of Praxiteles into the net of dolichocephaly and the Aphrodite of Melos into an anti-corset hygienic diatribe — what wonder archeology balks! Even the pure archeology of the new world is slurred as ugly and grotesque; the canon of Polycleitus would flee to his Argive mountains at sight of a stela from Quiriguá, and the grapes that Zeuxis painted turn to sour wine at sight of a Southwestern sand picture.

Between the upper and nether millstones of classical archeology and ethnology, pure archeology in this country has but a limited region of activity. So much is unknown, enigmatic — “problematical”, as Professor Holmes puts it — that ethnology rather lets it slip, and the majority of scholars flock to the living tribes, avoiding a science whose end seems to be a description of itself and its definitions to be in terms of the defined. Not content with the chasm thus separating the sciences, the personal equation takes a hand. There is the eternal revolt of the young against the old, the Ibsens, the D'Indys, the Rodins, versus Shakespeare, Beethoven, and — shall we say — Jean Goujon? Nothing so fascinatingly compelling to conservatism as Hellenic study; nothing more repelling to the explorer than the everlasting harking back to the

Greeks; the very name Classics invokes a gesture of disdain. "Out upon them!" "Away with them!" is hurled from high pedagogic seats, and Greek and Latin are invited to talk modern or give place to the twentieth century — a century smacking more of the twenty-first than of the nineteenth.

The power of advance creates a language — Volapük — Esperanto — this latter a utilitarian exemplification of the survival of the fittest — loves experiment and cares not for failure; all failures are but experiments and successes by exclusion. The universal language does not, like Islam, slay all the unconverted, so the intervening years must needs be given a linguistic-stepping stone, hence the anthropological terms which follow: Mentation, pentalogic, seriated (p. p.) nephelonomy, geonomy, chemology, andrology, demology, and the sciences (not altogether new) that deal with the pleasures, welfare, morality, expression, and opinion concomitant in every human act, namely: esthetology, technology, sociology, philology, and sophiology. Besides this nomenclature, for which we may hold as responsible or congratulate as having put into being the late J. W. Powell, we have less well-established names.

"Amerind" and "Amerindian" made a brave fight and are not quite dead yet; "nomenology," suggested by Hill-Tout, and "bicaves," suggested by Moorehead, have their accolade to win, while "artifacts" (or "artefacts") bids fair to live because of a crying need for it. But all these are horrors to the conservative. The modern Schmidt on Hesychius feels stunned by such words and spellings, and shouts "*procul profani*"; wrapping himself in a bomb-proof of ancient philology warranted to blunt the fiercest propaganda.

The older archeology and the newer anthropology, then, from scope, methods, material, purposes, ideals, age, and experience, show little likelihood of developing a cohesion that will cause them to dwell together as sisters, if not in unity, at least in amity. Yet both are here to stay, both are domiciled at Harvard, both point to a museum — Fogg or Peabody, with pride in the interior and tirade against the exterior.

Classical and American archeology after all deal, both, with works of art; discuss, both of them, the progress of artistic en-

deavor among more or less primitive peoples ; and both sciences try to run the probe as far back as may be. While Palestine, Assyria, Egypt, Greece, and Rome on the one hand were working ever backward, while the United States on the other was beginning to present its problems of Calaveras county, of Little Falls and of Trenton, other countries too were digging. England and France in caves and river-drift, Germany and Austria in Hallstatt and elsewhere, Denmark in peat-bogs and kitchen-middens, Switzerland and Italy in lake and bog dwellings, were stirring up problems and specimens, presenting these to museums and those to curators, and waiting for Archeology as a whole to take all together, classify, arrange, and deduce. Whether or no, willy or nilly, Archeology then had to answer, and letting go the leading-strings of History, stood on her own feet and boldly embraced the prehistoric. It is the "prehistoric" that names the keystone which will hold the arch that is going to bridge over the gap between old and new, East and West. When Schliemann found his nine superimposed cities and Dörpfeld relegated the majority of these to a time anterior to Agamemnon and Achilles, the touchstone of archeological community of interest was found. There were two stones or stone implements in juxtaposition in Egypt. Both man has wrought. One can be historically given an age of 5,000 years, and shows practically no weathering ; the other shows complete weathering. The comparison attests in a word the dignity of prehistoric archeology. Leaving History, then, Archeology joins schools and countries by speaking in other terms ; dates have less meaning than sequences, and Archeology dares put on the same plane of comparison the stone age of Greece, which may have ended at the second millennium, B. C., and the stone age of Massachusetts, which lasted till the Pilgrim Fathers came. The bronzes of the Mycenæan epoch may fearlessly be placed alongside those of Hallstatt, and series of vases may be made and compared whether from northern Mississippi, Etruria, or Crete.

The dependence of history on archeology instead of archeology on history may well be illustrated. All history must have a substratum of some sort to build on ; traditional it may be, but better it is that it be composed of facts. To Archeology — yes, and to

Anthropology — History turns for her starting points. It will not be amiss to give some examples showing where a series from the prehistoric to the historic has been established. In Egypt again whole sequences of objects ranging from prehistoric into the historic have been made. Flinders-Petrie says :¹

“Thus this chaos of over 900 types of pottery, hundreds of stone vases, weapons and tools of flint and of copper, ivory work and beads, extending over many centuries, perhaps one or two thousand years, has now been reduced . . . to an orderly series, in which we can not only state exactly the relative order of the objects, but also the degree of uncertainty and the extent of range which belong to each object. We have here a new and exact method for dealing with all those vague ages, as yet unfathomed, and for extracting all that is possible about their history. Prehistoric archæology has made another step toward becoming an exact science. And now the responsibility of those who excavate is tenfold increased, as the extent of their care and exactitude will more than ever restore or ruin the history of the past.”

Again,² the same author illustrates prehistoric specimens of stone from Egypt whose uses are unknown, and for which he wishes an analogy or explanation; the former at any rate may be given him in some of the shield-shaped “gorgets” that compose one class of the so-called “ceremonials” of the American Indians or mound-builders, provided they were different. While the explanation is still far to seek, it is not quite so far, for, granted one party to an analogy made clear, the other at once receives additional light.

To continue with Egypt. The important excavations of Dr Reisner and Dr Lythgoe formed more than one archeological series reaching backward into prehistoric times, and it must be remembered that that means somewhere in the fourth millenium, B. C. Flint-working camps of the prehistoric period and subsequent quarries of the Ptolemaic and Roman times were explored. This makes the sequence of the marble quarries on Pentelicon from Parthenon to Hotel Grande Bretagne, seem short, even curt.

There has been much discussion of the Pelasgian question and the Etruscan question. On the former one may quote rising eleven

¹ *Journal of the Anthropological Institute*, XXIX, n. s., 2, 300.

² *Man*, 1902, pl. B.

diverging theories, and on the latter still more. History and tradition are nearly forced to give up the problem. Archeology and Anthropology, however, are not ready to give it up, and Sergi has at any rate posed a good working theory for the Etruscans. He assumes, 1st, for paleolithic and neolithic Italy a homogeneous Mediterranean occupancy, dolichocephalic with the custom of burial; 2d, for neolithic and æneolithic Italy an intrusion of a brachycephalic race with the custom of incineration; and 3d, that late in the eighth century the Etruscans appear to be an intermingling. His theory of the homogeneous Mediterranean race is very good as a working hypothesis, and if we can find a solution and make it answer the questions, it should be considered a good Q. E. D.

Perhaps the most dramatic case of bridging over the gap between the old archeology, which dealt with late remains, and the new archeology, which deals with old remains, is that undertaken by Miss Harriet A. Boyd. After studying during the winter of 1896-97 at the American School of Classical Studies at Athens, Miss Boyd served with distinction as a nurse in the Greek army during the unfortunate war with Turkey. After the conclusion of the war, anxious to enter the Cretan archeological field on her own account, she received financial assistance from various colleges and universities in America, and instituted excavations at Kavousi and Gournia near the eastern end of the island. During the progress of her explorations she discovered remains representing periods of occupancy ranging from modern times well back into the prehistoric ages. Among these are the periods of Turkish, Venetian, Greco-Roman, and Mycenæan occupancy. Her discoveries were pushed so far with the comparatively unknown prehistoric times that she deemed it necessary to return and study in the Department of Anthropology of Harvard University. She felt that anthropology was perhaps the science most competent to deal with epochs which have not the assistance of history, traditions, and inscriptions for their elucidation. Miss Boyd, by her own homogeneous work, as it were, thus took part in bridging the gap between classical archeology and anthropology.

The proof of interest lies in publication. The Archæological Institute of America publishes the *American Journal of Archaeology*,

and various and sundry long-named anthropological associations the *American Anthropologist*. The *Journal* has been overwhelmingly classical in its table of contents, the *Anthropologist* most preponderantly non-classical.

The classical side were rather beforehand in courteous overtures, and their board of editors has held and again holds now a representative of American archeology; the officers of the Institute are urgent for American material, the Society supports a fellowship in American archeology, and one of the last societies to be affiliated with the Institute is the Southwest Society of Los Angeles, with the highly original Charles F. Lummis as its particular inspiration. More than this, the American Anthropological Association last year received an invitation to join the Institute and the Philological Association — note the latter — in their annual meeting at Ithaca. The bidding was accepted, and the interesting sight was presented of men whose supreme interests had been bound up with the cranial index, or whose comparative powers had been taxed to determine whether the raven or the coyote was more potent for evil, listening to an esoteric discourse on conservatism in Greek literature and life, and on the polygonal qualities of the erstwhile church of SS. Sergius and Bacchus in Constantinople. While, therefore, classical learning now respects and appeals to anthropology and prehistoric archeology, the latter have much to learn from their elder sister. Vice-president Boas, of the Anthropological Association, returned the classical compliment at Ithaca in emphasizing the need of philological study and erudition in ethnology. "Who," he said, "would study the Greeks, not knowing Greek?" "Who," said he, "should study the Indian, not knowing Indian?"

Of dry-as-dust Teutonic method archeologists in America must drink their fill. The day is, we hope, happily passed when specimens are dug up and sold, with no care in description, no concern for their environment. Mounds are made for something more than scratching or even trenching; there are men who can turn over and replace a whole mound and find nothing, yet be content with results of negative significance, or of purely structural importance. Men are happy to work in laboratories, examining specimens, measuring and comparing them; are willing to publish their results, leaving it

to the next generation to say that two and two make four. It is the true scholar's greatest care that he say not $2 + 2 = 5$.

Accuracy, patience, and contentment we may learn from our older fellows in the field of archeology. Breadth of vision, boldness, and comprehensive synthesis the classical student may well take to himself when he knocks at the door of Anthropology to ask whence all these things be.

CAMBRIDGE, MASSACHUSETTS.

PAWNEE WAR TALES

By GEORGE A. DORSEY

NOTE. — The two tales of war here presented were obtained from a very old Pawnee warrior commonly called George Shooter, a Chaui. Their chief interest is in the information they furnish regarding the methods formerly pursued by the Pawnee in preparing for and while on raiding expeditions.

THE DEFEAT OF THE PAWNEE BY THE CHEYENNE, ARAPAHO, AND COMANCHE

One night a warrior sat in his lodge with many friends about him listening to his experiences while on the war-path. As the night wore on and he continued to tell of his exploits, a great longing seized him and he asked his friends if they would accompany him the next morning, for he had decided to start on the war-path again. On that same night three other warriors sat in their lodges and told their friends of their own experiences in war, and a great longing to fight filled the breast of each of these warriors; then they asked their friends to go with them on the morrow, for they too had decided to start on the war-path again. Before the break of day the four warriors and their men were on the way to the country of the enemy. During the day the scouts from each party met and at night the four parties came together. The scouts resented the presence of one another, for every scout preferred to have the country to himself, but the four leaders joined forces and traveled together to the enemy's country.

One day the leaders sat down in a valley and sent out men to kill buffalo. The men went out, killed a buffalo, and started to skin it. When they had it about half skinned, the buffalo rolled over, jumped up, and ran away with its skin flapping up and down. The men were dumb with astonishment for a time; then they went on and killed another buffalo, skinned it, cut up the meat and took it to camp where the leaders were. While they were roasting the meat, the men who had been out to kill buffalo told the leaders

about the buffalo that was nearly skinned when it jumped up and ran away from them. One of the leading warriors said to the other leading warriors: "This is a very bad omen; tomorrow I shall leave you three warriors to go your way with your parties, and I will go with my party to another country." The other warriors spoke up and said that there was no danger and that they should all go together. All the warriors stayed at the place over night, but the next morning the warrior who said that he was going to leave started out toward the north with his men. They had gone but a short distance when the other companies sent four scouts to look over the country and see whether there were any signs of enemies. The scout who started first told the other three scouts that he would go ahead; that if he should fail then another should follow, and then the other one.

When the first scout had climbed a high hill on the south side, the main body were looking at him. Just as he was about to stand up, for he had been crawling up the hill, a man on horseback came up on the other side so that they saw each other at the same time. The man afoot crawled back. The man on horseback turned around and went back whence he came. Then the first scout gave a sign to the second that he (the first) had been seen; then the second scout gave the sign that the enemy had seen their scout, to the third scout, who passed it on to the fourth. The fourth man ran to the place where the main company of warriors was and told them that the first warrior had given a sign to the second, and the second to the third, and the third to himself, that an enemy had seen the first scout. The war-party slipped quietly away into a thickly timbered country and there they stayed. The other three scouts then stopped crawling and stood up and walked toward the place where the leaders and their warriors were in hiding. While they were walking over the prairie, several men on horseback came over the hill, saw them, turned their horses about, and disappeared over the hill. In a few seconds the enemy all came over the hill on horseback. They whipped up their ponies and rode toward the timber.

In the meantime the other leader who had gone had turned back with his company and joined the main body of warriors, and all the warriors were putting on their war clothing. There was one young

man who put on a wolf robe, seized his bow and arrows, jumped up in front of the leader and the men, and said : " Leader, to-day the Wolf-man shall defend you and your men ! " Then he went back and sat down. Then another young man jumped up and stood before the leader. This man had a bear robe about his shoulders. He said : " Leader and men, to-day the Bear-man shall defend you ! " When he sat down, another man, who had a buffalo robe about him, stood up before the leader and said : " To-day Young-Bull shall defend you and these men ! " He sat down and another man, with a coyote robe on, stood up and said : " Leader, to-day the Coyote-man shall protect and fight for you ! "

During this time the enemy were rapidly approaching on horseback. The four leaders then arrayed their men in a line and said that all the men should fight for their leaders. The enemy came and they were many. As they rode up, the four men jumped up on a bank and fought them, killing several and driving them back. Again the enemy made a charge and the warriors beat them off again. Again the enemy made an attack upon the warriors and again they were driven back.

About this time a man called out from the distance. The warriors looked and saw many men on horseback coming from another direction. The man who had hallooted to them, called out, saying : " My brothers, Pawnee, we are Comanche ; the Cheyenne and Arapaho are fighting you ; you have driven them back four times ; now we will stand here and watch you fight, but we will not take part, since you are our brothers. " When the Comanche finished speaking, some one from the warrior crowd of Pawnee shot at him and hit him upon the forehead, killing him instantly. The Comanche were aroused at once, for the Pawnee had killed their chief in return for their offer of peace. They rode away and joined the Cheyenne and Arapaho.

Then the Cheyenne, Arapaho, and Comanche all rode up to the Pawnee and surrounded them. The four warriors fought well. The Coyote-man, one of the four men who spoke, was killed. The enemy surrounded them, retreated, then rushed up again many times, but the Buffalo-man and the Bear-man held out against them for a long time. After a time, the Bear-man saw that there was

little hope for them and ordered the men to run into a ravine that extended up the hill side. They were surrounded in the ravine, for they did not know where to go. The Buffalo-man led the way, killing the enemies in front of him as he progressed. When the Buffalo-man had killed one man, another Pawnee caught the pony of the dead man, mounted it, and rode away. The Bear-man plunged ahead by fighting his way through the enemy, who closed in on all sides, killing them on the right and on the left. The Bear-man brought up the rear and fought the enemy from behind.

The enemy had killed many Pawnee warriors, but the man they wanted very much to kill was the Buffalo-man. In those days it was customary for the Pawnee to have their hair roached, but the Buffalo-man had long hair; so the enemy wanted to kill him and take his scalp. The Buffalo-man and the Bear-man succeeded in getting the Pawnee through the line of the enemy, but out of the one hundred and twenty men only twenty were left.

PEACE BETWEEN THE PAWNEE AND THE COMANCHE

There was one man who made up his mind to go on the war-path. He sent for several other young men to join him. They sat in his lodge with him and smoked the warrior's pipe. The warrior then told the young men that he had it in his mind to go on the war-path and that he had selected them to join him. The other young men, when they heard it, were glad. Each in his turn spoke and said: "I will go with you; this night I go to my lodge and tell my mother and sisters to make me several pairs of moccasins and to fill the moccasins with pounded buffalo meat and corn." The warrior was glad to know that the young men were willing to go with him. The young men left the lodge and went to their homes, and each told his mothers and sisters to make several pairs of moccasins and fill them with food. The mothers and sisters of these young men made several pairs of moccasins that night, and the next day they made more, so that by night they had made all the moccasins that the warriors needed. In the night the warrior sat in his lodge and the young men came in with their packed moccasins. The young men sat around the fire in the lodge. Some of the young men went out in pairs and sang war

songs around the village, to let the other young men know that they were about to leave the village to go on the war-path. Toward morning all had come into the lodge and the warrior led them out of the village.

The war-party went away into the southern country for many days and months. When they reached the enemy's country they were very careful to hide during the day and to travel only during the night. One day they were traveling along a ravine, when one of the scouts climbed up the side of a hill and saw a lone tipi on the prairie. He came down and reported to the leader that there was a lone tipi on the prairie. The leader went up the hill and saw the tipi there by itself. He went back and selected one of the scouts to go and visit the tipi and see who was in it. The scout went up, came to the tipi, peeped in, and saw that there were only one woman and a little boy about four years old. The woman was close to the entrance, pounding dried meat with a pestle. The scout went back and reported to the leader that there were a woman and a little boy in the tipi. The leader then told all the warriors to lie down in the ravine, saying he was going up to see whether he could persuade the woman to feed them. When the leader reached the top of the hill, he looked over the country and saw a man coming on horseback. He lay down and hid. When the man on horseback came to the tipi, he lariatied the pony and went inside. Then the leader arose and called his warriors and they followed him to the tipi. The warriors sat down outside of the tipi, while the leader went close up to the tipi and sat down. The little boy in the tipi was playing and laughing. The leader peeped into the tipi, and he saw that the man was lying down with a robe over his head, and the woman was still pounding the buffalo meat. The leader sat there for a long time, making up his mind whether to kill the people or whether to save them. He heard the boy ask his mother to give him some meat. The mother took some pemmican, pressed it together and made a ball of it, and gave it to the boy. He ran out of the tipi, up to the leader, put his arms about the leader's neck, and sat in his lap. The leader took the pemmican, then the boy went into the tipi to get something more. Again he went up to the leader and gave him the ball of pemmican, then

went into the tipi and asked for another ball of pemmican, took it out, and gave it again to the leader. Several times the boy took out meat and came back without any. The woman, knowing that there were no dogs about the tipi, thought there must be somebody outside to whom the child was giving meat. She called her husband and told him that she had given several balls of pemmican to the child, that he had gone out and returned without any, that she was sure she heard voices outside.

As the man rose up in the bed and rested on one of his elbows, the leading warrior made a motion to his warriors to follow him into the tipi. The leading warrior threw open the entrance and went in, and as soon as he went in the others followed him. The enemy lying in bed was paralyzed with fear. As soon as the warriors sat around the circle of the fireplace, the leader made a motion for the man to get up, but the man was so paralyzed that he did not get up for some time. The little boy in the meantime ran up to the leader and sat in his lap. The leader then made a motion to the man lying down to get up from his bed and to sit with them, assuring him that they did not intend to do them any harm, for said the leader, "I have a child like this little boy at my home." The little boy came and touched him with his arms and gave him something to eat, then gave him water to drink. "I have entered your lodge, and as I sit in your lodge the little boy again comes to me, as if he were my son; he sits in my lap; I love the little boy as I do my own, so you need not be afraid that we will kill you." The man lying upon the bed arose and sat with them. He breathed a sigh of relief, then he turned around to his wife and told her to put a kettle over the fire and to cut a little dried buffalo meat and boil the meat for the people. Then the man told the leader that his brother-in-law was the head chief of the Comanche; that the Comanche had been camping there and had broken camp that morning; that the men had gone over the hills but a short distance; that the people were waiting for them at another place; that they knew that the man of the tipi was hunting his ponies, and that this was how he and his family came to be alone in this spot; that he had been looking for his ponies that had strayed away from him and had not found them. The man of the

tipi further told the leader that he was glad that the warriors had not killed him, his wife and his child; and that they should start after they had eaten, and that he would take them to the village of his own people and give them assistance in capturing many ponies. The woman took the kettle from the fire and the warriors took charge of the kettle. The leader selected two men to take the meat out of the kettle and to divide it equally among the men. After the meat was divided equally, they all ate. Then the leader told the man that they were going down to the ravine to hide until night, when they would go with him to the village of his people. The leader and his warriors went out from the tipi to the hollow. Just as they climbed over the hill, one of the warriors looked back and there came upon the hill behind the tipi a man on horseback driving several ponies. The man who saw them called to the leader, who stopped and looked. He said that it was another man who was bringing the ponies that belonged to the man of the tipi. The warriors hid in the ravine, while the leader stood upon the hill. The man who brought the ponies went into the tipi. Shortly after he went in, the man of the tipi came out and went to the place where the warriors were in hiding. Then the man told the leader and the warriors that his brother-in-law had brought the ponies to his tipi and that, as his brother-in-law was chief of the Comanches, he had asked the leader and his warriors to come to the tipi again. The warriors all arose and followed the man to his tipi. They entered the tipi and there the chief was sitting by the woman at the southeast of the entrance of the tipi. The chief arose and shook hands with the leader, then shook hands with all the others. He made signs to the leader to let him know that he was thankful that he had not killed the man, the woman, and the child. He made the leader understand that the woman was his sister, that the child was his nephew. The chief also told the leader that the family were to take down the tipi, bring the ponies and pack all their things on them and go where their village was; that this man must make his tipi on the south side of the village, some distance away, and that they must come out there after dark, for the woman would have something for them to eat. The chief further said that he was going to give the leader

a fine pony with a saddle, and that when they got ready to go away, he would help the warriors capture many ponies. The leader said it was good. When this was all arranged the warriors went back and hid in the ravine.

The man and woman took down the tipi, brought their ponies and packed them, and went on to their village, and the warriors followed. The family arrived at the village and put up their tipi on the south side, and after dark the warriors went to the tipi and the chief and the man of the tipi were there. The chief told the Pawnee warriors that he was going to have the crier go through the village and tell the people to go to his tipi to tell war stories. The warriors, being afraid of treachery, told the chief that if he did not come back they would have to kill the man, woman, and child, but the chief said that he was in earnest. So the chief went to the village and called the crier to go through the village and invite all the men to come to his tipi. The chief stayed there. When all the men entered his tipi he told them that he wanted them to tell war stories. When the men came they began to tell their war stories and the chief slipped out and went to the tipi where his brother-in-law was with the enemy. He entered, and taking the warrior by the hand, led him out and gave him the pony and saddle he promised him. Then they went back into the tipi, the chief and the leader, and the chief begged the leader to give him the pipe that he carried. The leader said that he could not do that, but that when the chief should help the warriors capture many ponies and after they had been three days on their way home, he would kill one of the ponies, and then if the chief would go so many steps west of the dead pony he would find the pipe in the grass. The Pawnee did not want to give his pipe to the enemy for fear he would give him all the power that the pipe possessed. The pipe was one with which smoke had been offered to the different gods in the heavens, so that the gods watched over the men who carried the pipe and gave them success in capturing ponies or attacking people. By dropping the pipe it would lose its power. All these things were agreed on by the warriors and the Comanche chief. After the warriors had eaten and were given plenty of meat to carry home, they began to get ready to go with the chief where the ponies

were. The chief led them to a bottom land where all the ponies were. He told the Pawnee warriors to take as many as they wanted. The Pawnee took all the ponies they could manage and went on, the chief going home. The Comanche men who were in the chief's tipi were still telling war stories, but by morning there was a noise through the camp that the enemy had come to the camp and stolen many ponies. The chief then had the crier go through the village to tell the men to come to his tipi and he would lead them and try and catch the enemy who had stolen their ponies. So the warriors gathered around the chief's tipi and they struck out after the Pawnee warriors.

For several days they went on their trail, and on the third day they could see them going, but a long distance away. About that time the Comanche found a dead pony lying upon the path. The Comanche stopped and the chief kept going around until at last he went as many steps as he was told, and there in the grass he found the pipe. The chief picked it up and told them that he had found the pipe. The Comanche were glad that the Pawnee had dropped their pipe, and thought that all the powers that went with the pipe might now be given to them ; so they were glad to turn back. Many years after, the Comanche and Pawnee met. This story was told to the Comanche, and then the Comanche understood why so many ponies were stolen from them, and why the chief had invited all the men to his tipi. When the Comanche knew the story they were not afraid to visit the Pawnee, for now they were friends.

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HOPI SHRINES NEAR THE EAST MESA, ARIZONA

By J. WALTER FEWKES

INTRODUCTION

The more we know of the sociological evolution of the Pueblos, the more evident it is that the increase of population and attendant modifications in culture are due only partially to internal growth or the enlargement of existing families. Additions of new clans are most vital factors in producing these changes, always tending to modify more or less the culture of the population with which they have become incorporated. Survivals of these additions may be detected in cults, language, and arts of the component people. In order rightly to estimate the modifications resulting from successive incorporations of other clans with a people, it is important to recognize distinctive culture features belonging to the several component clans. This can be done by determining the sites of their former habitations and investigating the archeological evidences of culture contained in them.¹

The main but not the only source of our knowledge of the migrations and successive halts of Hopi clans is tradition, which indicates the pueblos (now ruins) that have been occupied by them. Culture objects from these ruins may verify or disprove tradition. Each clan added to a Hopi pueblo, being in itself a unit, has its own history, that may be regarded as independent of other chronicles of the kind up to the time of its fusion into general Hopi history.

Some of the characteristics of clan culture history survive among the Hopi to the present day. The first step in an investigation of Pueblo culture evolution is, then, definitely to associate ruins with clans. This may be done by several methods, one of the most reliable of which is by traditions.

I have already shown how certain Hopi clans claim ownership in eagles' nests near distant ruins and how this claim may be used

¹ Most of the data here recorded were gathered between 1890 and 1894, while the author was connected with the Hemenway Expedition.

in support of traditions. There is a similar proprietorship in shrines and springs¹ near ruins, and the identification of their present owners may aid us in determining what clans were once inhabitants of the pueblos of which these ruins are the remains.

In order to indicate the importance of shrines and springs in a study of Pueblo sociology, let us take for an example the clans that survived the fall of Awatobi. When this pueblo was destroyed at the close of the seventeenth century, it was inhabited by at least four peoples — the Awata (Bow), Honani (Badger), Buli (Butterfly), and Piba (Tobacco). It would appear that the population was composite and that the three peoples first named formed the nucleus of a population which was joined later by the last mentioned (Tobacco), that formerly lived south of Walpi on the banks of the Little Colorado. The Bow, Badger, and Butterfly came from the Rio Grande valley and were probably of either Keresan or Tanoan origin.²

In the dispersion of the survivors of Awatobi the Bow people went to the Middle mesa and the Tobacco to Walpi, while the women of the Badger and the Butterfly were appropriated by the Oraibi. Incidentally it is instructive to note that some of the Badger and the Butterfly peoples, returning to the East mesa, aided the Asa in founding Sichomovi, while the Bow people moved from their Middle mesa settlement to Walpi, where their descendants still live.

A few years ago the idols of the Alosaka at Awatobi were removed from their shrines and carried to the store of an Indian trader, the late Thomas V. Keam, to whom they were offered for sale. It was then learned that these idols were especially revered by the descendants of the Awatobi clans living at Mishongnovi, for almost the entire population of this pueblo visited Mr

¹ *American Anthropologist*, n. s., 11, p. 690-707, 1900. Every clan in Walpi has a right to water from the largest springs, but individual clans claim certain springs, especially those at distant ruins, as their property.

² As most of the ruined pueblos on the Antelope mesa were of Keresan origin, it is probable that Awatobi, which belongs to the same series, was founded by the same clans. At least we may logically conclude that the nucleus of that historic pueblo came from the eastern pueblos, especially as this conclusion harmonizes with the evidences that the Hopi culture was in the first instance of eastern origin and therefore more modern than that of the Rio Grande pueblos

Keam and begged for their idols. He delivered them to the priests and they were carried back to the Middle mesa.¹ It was discovered also at that time that several of the Awatobi shrines and springs were still used ceremonially by certain of the Hopi clans who claimed them as their property.

These facts might be paralleled in the history of many other mounds near the East mesa. Even remote ruins like Homolobi, Kicuba, and Lenyanobi are still regarded as the property of the clans that once inhabited them, and their old shrines and springs still figure in the ceremonials of those clans.

Another instance of the verification of a clan migration by ownership and position of a sacred spring is suggested by Sisibi, near the Moki buttes. This spring lies on the trail taken by the Southern people of Walpi in their migration to that pueblo from Homolobi. It is visited annually by the chief of the Kwakwantû, a warrior priesthood of Southern clans, for sacred water used in the New Fire ceremony.

Several clans are said to have migrated separately or together from Homolobi northward to Walpi. Among these were the Cloud, Lizard, Tobacco, Rabbit, and possibly the Young Corn. The Flute, Sun, Squash, and others had preceded them in this migration. When some of the clans came to a place called Koko-pelti a short time before they reached the Moki buttes, the Young Corn separated from the others and then or a little later the Tobacco and possibly the Lizard went to Awatobi. The remainder continued their journey to a pueblo called Pakatcomo, later to Tawapa, and ultimately joined the Walpians. After the destruction of Awatobi the Tobacco peoples were united with their former kindred in Walpi.

Judging from the time spent relatively in the manufacture and consecration of prayer emblems, it might well be concluded that these objects are essential features of every considerable Hopi ceremony. As it rarely happens that any rite is complete without the introduction of these objects, their correct interpretation is a key

¹ These images are now kept in a cave near Mishongnovi, and are probably the same as those figured by Dr O. Solberg in his article Ueber die Bahó's der Hopi, *Archiv f. Anthropol.*, bd. IV, no. 1, fig. 5.

to the meaning of the ceremony. Their form and character vary in different rites, as may be seen by consulting descriptions of different festivals. Appendages to these objects are significant, and each type has a prescribed form and pigmentation. Although varied in shape, color, and the materials of which they are made, prayer emblems fall into several types, among which may be mentioned prayer sticks,¹ clay images, miniature bowls, artificial eggs, meal, tobacco, and food of various kinds. It would be an important contribution to science to describe all the forms they assume, but the present article considers more especially the places where these offerings are deposited and incidentally certain other inclosures where sacred objects are kept. I have attempted to enumerate some of the better known shrines near the East mesa and have pointed out their distribution in that neighborhood, that this knowledge may serve as a guide in the determination of shrines near ruins and lead to a more complete identification of the clans that once inhabited the dwellings now represented by these ruins.

The number of shrines² near the East mesa is too large to consider exhaustively at this time, so it will be necessary to choose a few of the more significant for description. There are others, of course, including many at the other mesas that are here omitted.

In one sense any inclosure in which ceremonial objects are preserved is regarded by the Hopi as a place for prayer offerings. Thus a cave or a recess in a cliff where, for instance, the jars used in washing the reptiles in the mysterious rites of the Snake dance are kept, or the cavern where certain dilapidated effigies of plumed serpents are stored, is considered with a certain amount of reverence. The same is true of the cleft in the rock containing the Apache scalps and of the burial places of the eagles. It is not possible to draw a strict line of demarcation between cemeteries and true shrines.

Among the Hopi a shrine varies in form and construction from an inclosure in which an idol is permanently preserved to a simple

¹ At my suggestion Dr Solberg has lately made a collection of Hopi prayer sticks, which he has described in a special article (op. cit.) in which several shrines are likewise figured.

² The word shrine is used broadly to designate a devotional place other than the ceremonial chambers, or kivas.

cleft in the side of a boulder or cliff. One of the simplest Pueblo shrines is a pile or a ring of stones so placed as to form an inclosure for the reception of offerings. Abandoned shrines near inhabited pueblos are not uncommon, new shrines being constantly made as new conditions may seem to demand them. The situation of shrines is determined by convenience and by safety of access as well as by other considerations. Predatory tribes have sometimes raided so close to the Hopi mesas that shrines could not be visited without danger. When a new shrine is made to replace an old one the latter is still regarded with reverence, and in it offerings are still placed at stated times — a custom that persists even after the idols or other sacred objects have been removed. Thus the figurines of the Alosakas¹ no longer occupy their ancient crypt at the ruin of Awatobi, yet their former home, the old shrine, is still treated with reverence. Talatumsi, the Walpi equivalent of the Earth goddess, called the Alosaka woman, formerly had a shrine to the north of Hano, but the site was too exposed to hostile Utes and Apaches; the idol was removed to its present home, but at the New Fire ceremony each year offerings are still placed in the old shrine.

Of the several types of Hopi shrines the most complicated and characteristic is that which contains an idol or image to which the shrine is especially dedicated. The shrine of Talatumsi is the best known of this type. A majority of the larger shrines are of the simplest construction, consisting of stones arranged in rings with a large rock on one side forming a back. Both simple and complex shrines often contain stones, concretions, and various other oddly-shaped substances.

In the theogony of the Hopi, as among other agricultural peoples whose ideas are not modified by acculturation, living beings are supposed to have sprung from a preëxisting earth, the origin of which is beyond their philosophy and therefore not considered by them. The earth in their conception always existed, and, following the analogy of growing vegetation, organisms grew out of the earth

¹ The Alosakas, of which there were two images at Awatobi, one representing the male, the other the female, are equivalents of the Hopi *Muyiñwū-taka* and *Muyiñwū-wūqti*. The former would appear to be a sky god, the latter an earth goddess. In a way both are rightly designated germ gods, clan designations of conceptions which find expression under many different names.

or were born like animals. The earth to them is not a creator but a mother, the genetrix of lesser gods and animals, and the ancestor or first of the human race. In order to carry out the analogy of conception or gestation, a mythic father, or Sky-god, the male principle of nature, was assumed and personified as an ancient Pueblo god of highest rank. This god, like the personation of the earth, has various synonyms or equivalent designations, the multiplicity of which would appear to indicate a most complicated and advanced mythology, although in reality it is quite simple. The Earth mother has also many names derived from different clans or attributes. We find the Sky-god called Heart of the Sky, Sun-god, Plumed Serpent, and by numerous other designations. No satisfactory interpretation of Pueblo mythology is possible before the synonymy of the gods shall have been worked out better than at present.

The Hopi have several shrines erected to such earth beings as Spider-woman, Tuwapoñtumsi, Muiñwû, and Masauû. Sky and Sun gods likewise have their places for prayer offerings. Many shrines are dedicated to the Rain gods, or Katcinas,¹ ancestors of the clans. So far as I have been able to discover, there is no special shrine of the warriors similar to that of the members of the Zuñi Priesthood of the Bow on the great mesa near their pueblo. The places of offerings to the Plumed Serpent, a Sky-god introduced from the south, are springs, not true shrines.

SHRINES TO SPECIAL SUPERNATURALS

Talatumsi. — This personage, a synonym of the Alosaka-wüqti, or the Alosaka woman² of Awatobi, has two shrines at the East

¹ The word *kadcina* is apparently derived from pueblos of Keresan or Tanoan stocks. A *kadcina* is sometimes called a "sitter," referring possibly to the custom of burying the dead in a sitting posture. Among the Zuñi, as with the Hopi, the *kadcinas* are ancestral gods that are supposed to live in an underworld or mythic dwelling under or associated with a lake or spring. These ancestral spirits are personated from time to time in sacred dances, when prayers are said to the personators vicariously for rain and other blessings. According to Mr H. R. Voth, the word *katci* means "living"; possibly *kadcina* is from *katci*, "living," and *na*, "parent."

² The Tewa equivalent of *Talatumsi* is called by them *Cenikwia*, the Horn-woman (*tala*, "dawn"; *tumsi* or *tumasi*, "elder sister" or "woman"). *Tumas Kadcina*, known at Oraibi as the man who bears the helmet with crow feathers, is apparently the elder

mesa, one of which (pl. xxvi, fig. *a*) is situated on the terrace among a pile of rocks to the left of the so-called ladder trail¹ from Tawapa to Walpi. The image of this being is ordinarily seated in a stone inclosure or cleft of the rocks between two bowlders, whose entrance is closed by a wall of small stones and is opened only when the shrine is visited for ceremonial purposes. Talatumsi plays an important rôle in the New Fire ceremony and her image is carried to the mesa top quadrennially when the rites elsewhere described² are performed before the shrine.

Tuwapoñtumsi. — The best known shrine of this Earth-woman is situated to the left of the trail leading from Walpi to Mishongnovi, just below the ruin Kisakobi, or Old Walpi. It is a simple box-shaped inclosure (pl. xxvi, fig. *b*), or rude crypt, made of slabs of rock standing on edge, open at the top and on one side. Within the inclosure are a log of petrified wood, and other objects of stone. Offerings are presented at this shrine in the New Fire ceremony in November, as elsewhere² described. At this time the whole ruin of Old Walpi is regarded as one great place for offerings, and after a procession around the mounds has been made by the two Fire societies, offerings are placed in the shrines. The Earth-woman above mentioned is sometimes called Tawakütcmana, or Sun-white Maid, and the concept is known by various other names also.

Shrine of Salt Woman. — Light is thrown on the situation of Hopi shrines by a study of trips made by this people to the Grand canyon to obtain salt. At that time they carried offerings to the Woman of the Hard Substance, sometimes called the Salt woman, who had a shrine in or near the canyon. So far as I can trace traditions, it would seem that the Spaniard Cardenas in 1540 followed the same trail that the Hopi still use when they visit

sister of the Kacinas. She is associated with the child-floggers, called at Walpi the Tuñwup Kacinas, at Oraibi the Ho Kacinas. These and many other duplications of names of the same god among the Hopi are very often perplexing in a study of their mythology.

¹The ladder trail is the steepest of all the routes leading from the terrace into Walpi and is almost precipitous at one point where a stone stairway replaces a former ladder. This trail passes between two conspicuous stone pinnacles before entering the small court in which the Moñkiva is situated. Its name is derived from the old ladder once used at the steep part of the ascent, but now abandoned.

²The New Fire Ceremony at Walpi, *American Anthropologist*, n. s., 11, 1900.



HOPÍ SHRINES

a, Shrine of Talatumsi. *b*, Shrine of Tuwapoñtumsi. *c*, Coyote trap. *d*, Masauti shrine.

the Havasupai Indians in Cataract canyon, or practically part of the old route used in these excursions after salt. This trail apparently crosses the Little Colorado not far from the Moenkopi trail at Tanner crossing, a few miles below Black falls. The route with Hopi names attached, as given to me by one of the Indians, will be considered in another article.

It is said that before gathering the salt which hung from the cliffs in the form of "icicles," the Hopi deposited prayer sticks, one before the image of the Salt goddess and the other before that of the God of War. It was their custom to allow themselves to be suspended over the edge of the cliffs by ropes, in order that they might break off the salt "icicles" and transfer them to their sacks.

Great Masauû Shrine. — One of the best known of all the shrines at the East mesa is the Great Masauû shrine, situated among the foot-hills west of the mesa, near the main trail to Walpi. This shrine, as shown in the accompanying plate (xxvii, fig. *g*), has a rock on one side but is made up largely of twigs and branches that have been thrown upon it by those passing with firewood. In the same shrine may likewise be found small clay vessels, prayer sticks, and various other offerings. These are not confined to the shrine but are found also in front of the opening, as in the case of the small bowl shown in the figure.

Small Masauû Shrine. — Along the top of a ridge forming the eastern border of the sand dunes near Isba, north of the peach-trees, are four piles of stones (pl. xxvi, fig. *d*) mixed with small fragments of wood. These occur at intervals alongside the old trail, now abandoned, from the valley to Hano; in former days those setting out to gather wood on returning with their loads threw on the piles offerings to the god Masauû in the belief that by so doing they avoided fatigue.

In ancient times the annual wood gathering in November, just about the time of the New Fire ceremony, was the occasion of the exhibition of an interesting custom that still survives at the East mesa. The last time I observed it was at the close of November, 1900, when the events here narrated occurred. On the 28th many men of Walpi started for the wooded mesas about six miles north of the ruin Sikyatki. Early on the morning of the 29th the town

crier, or the chief, from the top of the highest house in Walpi gave notice to the girls of the pueblo to don their finery and proceed down the trails to meet the returning wood gatherers. About the middle of the forenoon several venerable chiefs gathered at the spring Moñwiba, and later went to a knoll called Mancitcomo, where girls from the pueblos had collected in considerable numbers, all dressed in their best clothing. Among the patriarchs who gathered there were Kwatcakwa, the sun-chief, Hoñyi, the speaker-chief, Hayi, and Pautiwa, the warrior-chief. At Wala the speaker-chief laid on the trail a cotton string with feather attached and drew a line of meal on the ground as symbolic of opening the trail to the pueblo for the returning wood gatherers. The old men kindled a small fire and smoked, quietly awaiting the wood gatherers, who soon appeared and were greeted with a "thank you." As each group appeared, one or another of the maidens would run out and present her chosen youth with a small package of corn mush (*sozwibi*). If he took it the maiden followed him along the trail to the mesa top. In this way the maidens showed their preferences for certain youths, generally for those to whom they were betrothed, or in some instances openly expressed their preferences for the first time. Married women take no part in this custom for obvious reasons.

After all the wood gatherers had passed, each of the old men gathered a bundle of greasewood, threw it on his back, and proceeded up the trail. As the crowd approached the town, a considerable number of people had gathered on the house tops of Hano to watch the proceedings, and amid much laughter the loaded burros, with their happy drivers followed by the bashful maids, passed through the pueblo. Formerly this custom was observed by many people, but at present the number of participants is but small. It is said that in old times a procession of this kind yearly passed the four piles of stones and twigs above described when it returned to the pueblo.

There are numerous other small shrines of this kind near the East mesa, some of which are collections of small stones thrown there by passing Indians, others stones deposited in natural crevices of boulders or cliffs. In the same category may be placed also the rock called Masowa, or Skeleton Stone, situated about halfway



HOPI SHRINES

e, Sun shr. ne. *f*, Warrior shrine at entrance to Walpi. *g*, Shrine of Wukomasauú. *i*, Pictograph of mountain lion. *h*, Snake shrine.

between Tawapa and the elevation to the left of the eastern trail leading to Hano, upon which stands the house purchased from Polakka, a Tewa Indian, and for a long time occupied by officials of the Government.

*Plumed Serpent Cult.*¹—This cult appears among the inhabitants of the East mesa pueblos in two distinct forms, that of Hano and that of Walpi. The former is the Tanoan, the latter, the Hopi variant. One came from the east, the other from the south. The Plumed Serpent cult is a form of sky or sun worship introduced into Walpi by the religious fraternities of the Cloud, the Flute, and other southern clans. Effigies of this serpent are employed in the Winter Solstice rites of these people and in the March dramatizations. It crops out likewise in the New Fire ceremony when members of the Kwakwantû, a warrior society, carry wooden slats representing plumed serpents, and their chief bears an effigy of the same monster, made of the stalk of the agave plant. The spring Tawapa, supposed to be the home of the Plumed Serpent, no doubt received its name, Sun spring, from the connection of sun and serpent worship.

In the dramatization that occurs at the East mesa every March, the Tewa and the Hopi employ effigies² of these reptiles made of cloth, skins, and gourds. Formerly these effigies when not in use were kept in caves outside the pueblos, but of late intramural receptacles have been made for them. The effigies of the Plumed Serpents of Hano were formerly kept in a small cave on the west side of the mesa near the ruin at the mound Tukinobi, but they are now concealed in four jars in the home of the Tobacco clan. The extramural crypt or "home" contains fragments of old abandoned effigies, hoops, cloth, and broken gourds, with fragments of wood and pieces of cord, and is occasionally visited by priests who sometimes make offerings at that place.

¹ The Horned, or Plumed, Serpent cult, was widely distributed in Mexico, the Pueblo area, and among the ancient inhabitants of the Mississippi valley. It is a form of sun and sky worship, and is almost universally said to have been brought to Walpi from the mythic land in the south called Palatkwabi. The horn is constantly represented on the head of figures of this serpent, feathers being less constant.

² I was repeatedly warned not to touch these effigies, even when they were not in use. Women never allowed even their garments to come into contact with the effigy of the Great Snake.

Sumaikoli Shrine. — Several men at the East mesa belong to a sacerdotal society called the Yayas. They claim to be able to cure diseases of certain kinds and the stories they tell of their necromancy are past all belief. In treating the sick they make use of heat, ashes, or other products of fire and most of their jugglery is with firebrands, so that one would not be far astray in calling the Yaya a Fire society; hence I have spoken of their biennial festival as the Little Fire ceremony. They kindle fire with two sticks, and at the time a row of masks called the Sumaikoli and Kawikoli, a fetish of the Earth goddess, Kokyanwüqti, the Spider-woman, and other objects are arranged in the form of an altar. Perhaps the most significant and characteristic ceremonial object employed by the Yaya is a wooden framework, called by Mrs Stevenson a "charm." This is carried in the hand in the manner shown in my representations of the Sumaikoli and Kawikoli.¹ Two of these "charms" were obtained by Mr Stewart Culin in a collection from the Canyon de Chelly. These specimens, now in the Brooklyn Institute Museum, possibly belonged formerly to the Asa clan, who claim once to have inhabited the ruin near which these objects were found. If so, there is no doubt of the late occupancy of some of the cliff-dwellings of the Canyon de Chelly, as the Asa moved to this canyon in quite recent times.

It would appear that the Sumaikoli ceremony was brought to the Hopi by eastern Pueblo clans, and I am inclined to attribute its introduction to the Asa or to some Hano peoples supposed to be Tanoan. Mrs Stevenson has described the Sumaikoli and Kawikoli (Saiapa) as they are personated in Zuñi, where the cult is much more elaborate than at Hano or Walpi. The Sumaikoli cult seems likewise to have been added to the original culture of the Zuñi since they settled in the Zuñi valley or while their home was farther down the Little Colorado.²

¹ The Lesser New Fire Ceremony, *American Anthropologist*, III, 1901; *Twenty-second Rep. Bur. Am. Ethnol.*, pl. XXXV, p. 96. Like so many other Hopi ceremonies, the Sumaikoli is of Keresan origin.

² The Sumaikoli apparently originated at Cipia, an ancient Keres habitation near Isleta or Laguna, New Mexico, from which it spread to Zuñi and to the Hopi mesas with the possible exception of Oraibi. This appears to be one of many ceremonial personages common to the Hopi and the Zuñi that were not derived one from the other but arose

Just opposite an old house in Hano, where once lived the sun-priest who was also chief of the Sumaikoli, situated on the eastern rim of the mesa, there are a few small stones forming an inclosure in which are biennially deposited the prayer sticks of the priests at the Sumaikoli ceremony. The shrine, called a sun shrine, receives other offerings also, but that made to the sun by the Yaya priests is conspicuous. This priesthood makes offerings also to the moon, to Masauû, and to the six world "quarters"—north, west, south, east, above, and below. Such offerings consist of feathered strings, some of which are tied to an emblem representing the sun.

The Sumaikoli and Kawikoli masks of Hano are kept in a dark room on the ground floor of the old sun house of that pueblo. They differ somewhat in symbolism from those of Walpi.¹

Sun Shrine on Trail to Katcinaki.—Katcinaki, or the Katcina house, is a shallow cavern situated nearly under Sichomovi, halfway between the edge of the mesa and the surface of the terrace. This is the place where men personating the katchinas unmask and where they have their mid-day dinner. Here is a small shrine in which ceremonial deposits are placed at times. The trail leading to it from the mesa top passes over the east rim of the mesa about halfway between Walpi and Sichomovi and, after descending a few feet, bifurcates, one branch forming the main trail to Sun spring. Overlooking this trail as it leaves the mesa is a projecting spur of the mesa edge upon which is situated the Eastern Sun shrine of Walpi. This shrine, shown in the accompanying figure (pl. xxvii, fig. c), is filled with offerings at the Winter Solstice ceremony and is a receptacle for prayer sticks and feather offerings at other festivals also.

Talaviwa.—This shrine is situated on the extreme point of the cliff above Wala, on the trail from the Isba to Hano. Near it are the markings in the edge of the cliff through which the Tewa formerly shot their arrows at invaders, in defence of their town. On the oc-

from a common source. Like the Zuñi Kolowissi and the Hopi Palülükon, both were derived from clans that once lived on the Little Colorado. In a somewhat similar way the concept of the Flute cultus hero in these two modern pueblos may have been independently derived from the people of some Flute pueblo now in ruins.

¹ See *Jour. Am. Ethnol. and Archeol.*, 11; also, *American Anthropologist*, n. s., vii, 1901.

casion of my visit the shrine contained several fragments of petrified logs but no prayer sticks or other offerings.

Moñiva.—This shrine is situated on the mesa top, north of the main cluster of Hano houses, and not far from the remains of an old kiva adjoining broken-down walls of an ancient habitation that the Hano ascribed to the Katcina clan. Offerings are made in this shrine, especially by the Hano priests and those personating the Hano katchinas.

Hano Sun Shrine.—It is in this shrine that the sun priest of Hano places his sun offerings at the summer solstice, as recorded in my account of this ceremony.¹

Ancient Hano Sun Shrine.—There is an old sun shrine of the Hano clans on the mound south of the trail that leads from the foothills to their ancient pueblo on Sikyaotcomo, or Yellow-rock mound. It is said that one of the earliest Hano settlements crowned this elevation and the adjacent remains of walls support the tradition that it was a pueblo of considerable size. The shrine on this hill is used almost exclusively by the modern Hano priests and always contains several offerings. It consists of a ring of stones a few feet in diameter, open on the east side. The character of the offerings varies from time to time. The following objects were observed just after the Winter Solstice ceremony in 1900. The most unusual form of these offerings, peculiar to Hano so far as I know, is a prayer stick in the form of an ancient ladder, which is elsewhere figured, and described as carried by the Buffalo maid in the Buffalo dance. This is a flat wooden slat serrated on each edge with each surface divided by a meridian band, one side yellow, the other green. One end is continued into a handle. The ladder prayer stick is used in the Winter Solstice ceremony in a symbolic way, being in fact an offering to the sun, which is supposed to be weary at that time and in need of assistance in climbing from his home in the under-world to the sky.

Two sun prayer sticks of Hano priesthoods were likewise seen in this shrine. These differ from the Walpi variety in having a ferrule incised in the stick representing the male, a face being painted on the stick representing the female. Both Hano and Walpi varie-

¹ *Jour. Am. Ethnol. and Archaeol.*, 11, 1893.

ties are double, consisting of two sticks tied together about mid-way in their length. One of the most remarkable offerings in this shrine was an imitation of an eagle's egg, made of wood. It was painted white with black spots and had a wish feather attached to it. These imitation eagle eggs are "signature" prayers for the increase of eagles and occur also in other sun shrines. They are made at the Winter Solstice ceremony.

Shrine of Ahüla.—Ahüla appears in the great Katsina ceremony called the Powamû, or yearly celebration of the return of the katsinas, or divinized ancestors. This personage, representing the Sky god or male parent of all, visits the main clan homes of the three villages on the mesa, symbolically receiving the prayers of their residents which he answers in a similar manner.

There is a conspicuous shrine situated at the gap, Wala, near the head of the trail from Coyote spring to Hano, which contains a coiled stone, possibly a cast of a cephalopod shell. Prayer offerings are placed in this shrine in many ceremonies; here Ahül, the Sky god, dresses and dons his mask before he enters the Hopi pueblo. The coiled stone is not interpreted as representing a snake idol, as some authors have suggested, but as comparable with what the Hopi call, as translated, a "heart-twister."¹

Tolkükü.—The shrine of the animal footprints is situated near the trail from Walla to the two mounds called Kükütcomo, "footprints mound." This shrine, a small cairn containing stone fragments and other objects, takes its name from certain depressions in the surface of the rock which the Hopi liken to wildcat tracks. Several similar markings on the rock nearby seem to indicate that the impressions especially associated with the shrine were but one specimen of many of these impressions to be found in the neighborhood. In this shrine was observed a wooden ball, which I was told had been placed there in order that the Rain gods might pour out water from the clouds in torrents which should fill all the dry water courses, causing the adobe balls in their beds to be rolled along

¹The nearest approach to it in form is the coiled stone from Awatobi now in the Berlin Museum, to which institution it was sold by the late Mr Thomas V. Keam. A coiled wooden object known as "the mother" and called also a "heart-twister" is prominent on the Walpi Mamzrauti altar. (See *American Anthropologist*, III, 1892.)

like the stone balls which were kicked by the young men in the foot races held in early spring. These races are thus a form of prayer, or a mental suggestion to the Rain gods to aid their descendants with copious rains.

Kwapihikpu. — This shrine, situated on the north side of a hill called Tuginobi that lies about midway between the twin mounds Kükütcomo and Wala, is, as its name signifies, an eagle shrine; it contains artificial eagle eggs, especially just after the Winter Solstice ceremony. Near the shrine are the remains of a former settlement of the Kokyan, or Spider clan of the Bear people, the earliest arrival in Tusayan and a very old settlement on the East mesa.¹

SHRINES IN THE PLAZAS

Almost every Hopi pueblo has in the middle of its plaza a shrine that is generally one of the best made of these structures in the neighborhood. These plaza shrines are of two kinds: (1) those whose cavities are sunk below the level of the ground and always provided with a stone covering; and (2) those with lateral walls above the surface of the ground, having lateral entrances. Both types are sometimes said to represent symbolically a mythological opening from the under-world through which the races of men emerged. The plaza shrine of Walpi belongs to the former of these types, the corresponding shrines at Sichomovi and Hano to the latter.

A plaza shrine of the second type is a simple uncovered stone box made of slabs of rock set on one edge, generally with the east side open. Shrines of this kind are usually well supplied with prayer emblems of different sorts.

Sipapû is, of course, a general name for the entrance to the under-world, and is applied likewise to a symbolic representation of the same, as a hole in the floor of a ceremonial room or a depression in the plaza. The plaza shrine at Walpi is a sipapû, or crypt in the floor of the plaza, and is covered with a circular stone ordinarily

¹ Like many of the oldest clans of the Hopi pueblos, the Spider clan is said to have come from the east. According to some of the most reliable traditionists, the Bear people are the oldest in Walpi. The evidence drawn from picture writing found on pottery taken from their old ruins relates them to former inhabitants of Sikyatki, whose ancestors we know came from Jemez.

cemented over the orifice. This stone covering is removed at certain ceremonies when offerings are deposited in the cavity. At the New Fire ceremony broad lines of meal are drawn on the ground from it across the plaza in the direction of the shrines of Talatumsi and other supernatural beings. These are either pathways of influence from shrines to the under-world, the abode of the gods, or vice versa.

WORLD QUARTER SHRINES

In certain of the great Hopi festivals, as the Snake dance and the Flute ceremony, but more especially in the former, it is customary for the priests to deposit prayer sticks for rain in temporary shrines situated in the four cardinal directions¹ from the pueblo. These sticks are made for seven consecutive days, their length each day being less than on the preceding day. The shrines in which the offerings are placed are situated at distances also diminishing day by day from the maximum — about five miles. On the last day prayer sticks no longer than the first joint of the finger are placed on the four sides of the entrance to the room in which the offerings are manufactured. These temporary world quarter shrines and the offerings placed in them are located at constantly diminishing intervals in order to toll the Rain gods from their distant homes to the pueblo.²

Snake Shrines. — In the now voluminous literature of the Hopi Snake dance, little or nothing has been recorded regarding the fate of the long black prayer sticks made by the Snake priests and carried by them in the dance. At the close of the dance these objects are deposited in four shrines situated at the base of the mesa, one in each of the four world quarters, and hence called the North, West, South, and East snake shrines. It may be mentioned also that in the disposition made of the snakes after the dance a serpent is always left in each of these shrines.

The Snake shrine of the North is situated near a large boulder, not far from a house owned by Kannu. At the time of my visit there were in this shrine several of the black prayer sticks of the priests. The Snake shrine of the West is a cleft in the pinnacle of

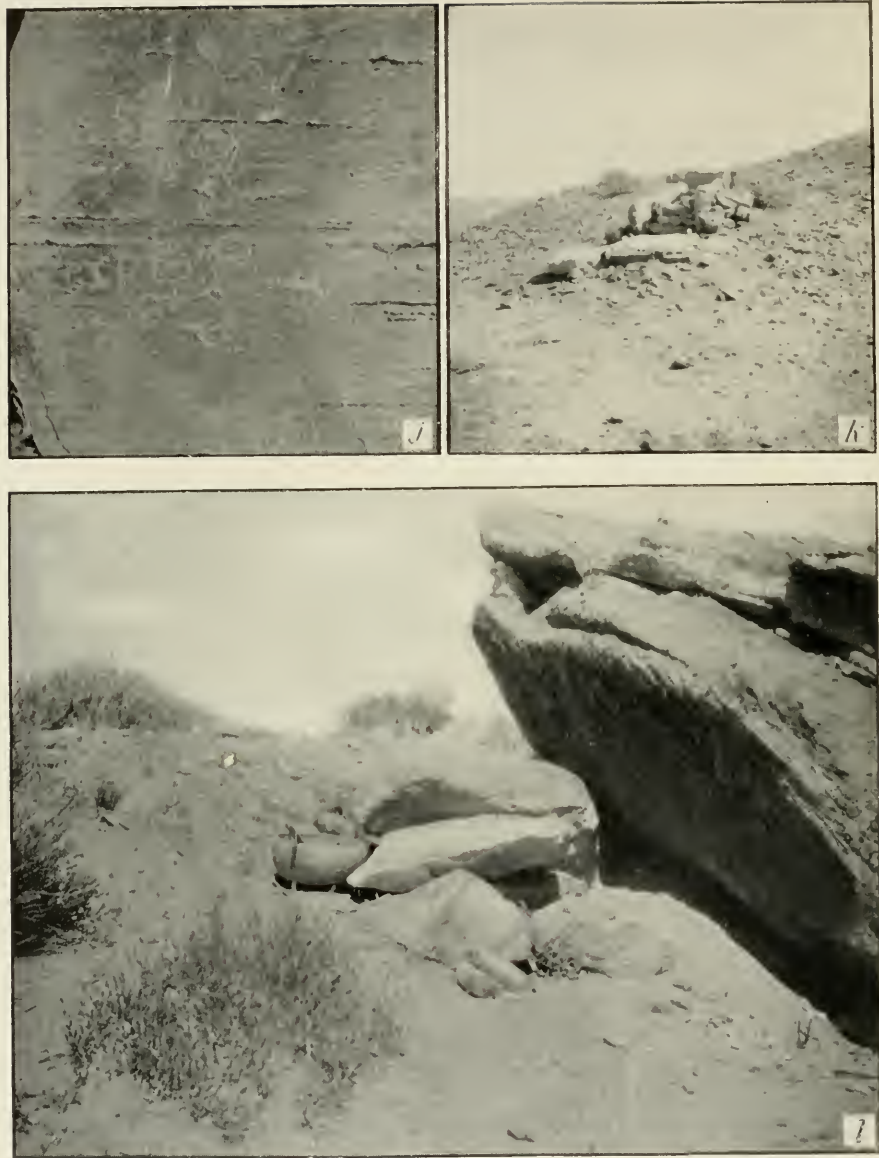
¹ Determined by solstitial sunrise and sunset, not by polar observations.

² Shrines may sometimes, as possibly in this instance, symbolically represent springs.

rock at the extreme south end of the East mesa, near the boulder on which is cut the pictograph of the winged being Kwataka, elsewhere described. The Snake shrine of the East is situated not far from the Buffalo shrine, to the right of the road as one approaches the spring called Ispa, Coyote Water. It is a simple cleft in the rock which bears one or two pictographs of serpents. The Snake shrine of the South is situated a little to the right of the steep trail to Walpi, just below the sheep corral on the terrace. Nearby are pictographs of snakes and when visited the shrine was found to contain several snake prayer sticks.

SHRINES WITH PICTOGRAPHS

It commonly happens that pictographs of striking character are found near shrines. None of these is more instructive than the pictograph of Kwataka, a mythic being of birdlike form. This being is regarded by the Hopi with great awe, for it is one of the most dreaded supernatural personages of the tribal Olympus and around it cluster many legends, some of which recount how it destroyed and devastated old pueblos. Some of the ruins of Arizona are directly associated with the effects of its rage. In certain respects Kwataka resembles the Zuñi Achiyälätöpa, "the knife feathered being," figures of which are so constant on certain Zuñi altars but which I have never found on a Hopi altar. Kwataka was worshipped when success in war was desired, and offerings of medicine were placed in the depression indicating the location of the heart of this supernatural being. He was regarded as the most powerful god of war. There is a very good pictograph of Kwataka in the foothills at the south end of the East mesa, on the face of a large boulder. The accompanying drawing (figure 15) shows that the Hopi conception of him was a giant birdlike being with a long straight beak and a crest of feathers. Remarkable features not partaking of the birdlike character are the two appendages rising from the back and extending forward. These are said to represent baskets in which prey is placed, but were more probably designed for basketware shields to protect the god from his foes. The depressions in the surface of the rock near the position of the heart, where the war medicine was placed, are indicated in the illus-



HOPI SHRINES

j, Pictographs near snake shrine. k, Katsin shrine. l, Hopi grave with offerings.

tration. On approaching this pictograph, one may see on the rock footprints said to have been made by Tcavaiyo, another little-known monster of Hopi mythology. From several considerations I am

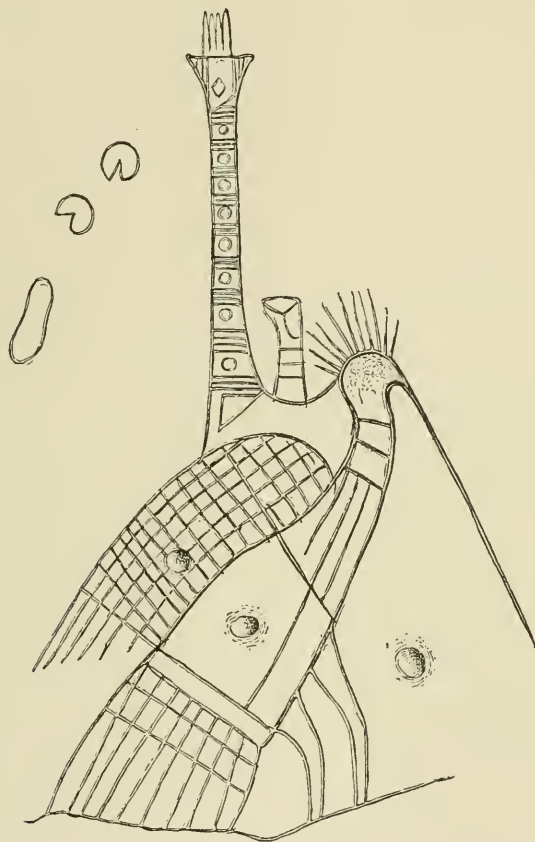


FIG. 15. — Pictograph of Kwataka.

led to regard Kwataka as an ancient Sky god, the rites of which have not yet been identified.

The Nakopan Shrine and Pictograph. — This shrine is situated about two miles north of the mounds of old Sikyatki and the accompanying pictograph commemorates one of the few folk tales that have come down to our time from that prehistoric village. In my paper on Hopi Katsinas will be found the story of the personages

concerned, with graphical representations of them, but no one has yet described the shrine. This consists of a shallow cave hollowed out of the cliff a few feet below the edge of the mesa, on the side

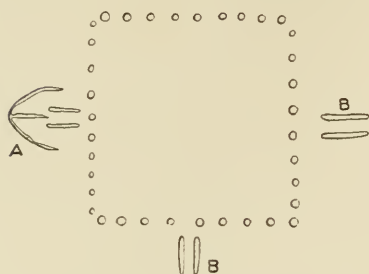


FIG. 16. — Pictograph of Nakopan.

looking toward Sikyatki; it contains two stones of unusual shape, called by the Hopi the two War gods. In front of these stones there were when I visited the place several rude clay vessels and prayer sticks. The pictograph of the Nakopan, cut on the surface of the cliff just above the shrine, consists of an incised figure of rectangular shape indicating where

the Nakopan personages were seated, the maid being a figure of the female organ as shown in the accompanying illustration.

The pictograph here dealt with (figure 16) is said to show where the children of the Sikyatki woman sat when she left them their food. It is about $2\frac{1}{2}$ feet square, the seat of the girl being represented by the female sign (*a*), and that of the boy by parallel lines (*b*). According to the myth, a Sikyatki mother was angry because her children begged for corn. They fled to the cave described above and the mother, who had entered into illicit relations with a man not their father, left food for them daily at this place.¹

Toho Pictograph. — This pictograph (pl. xxvii, fig. i), which occurs on the face of a large boulder situated on the terrace below Sichomovi, represents in incised outlines a mountain lion several feet long. The heart is indicated by a depression in which meal or other offerings may be placed, but they are placed also near the base of the rock. This boulder is situated not far from the site of the first trader's store² at the East mesa.

¹ Near this pictograph two Hopi men were killed by the Navaho in comparatively recent times.

² The earliest trader was a young Mexican, Roman Vaca, called by the Hopi Lomana, who brought his stock in old wooden-wheeled wagons over a road the signs of which are still to be seen. Vaca was succeeded by Mr William Keam, whom the Hopi call "Billee" and from whom Keams canyon takes its name. Mr William Keam was succeeded as trader by his brother, the late Thomas V. Keam.

VARIOUS OTHER SHRINES

Mucaiaski. — In this shrine — a cleft in the rocks to the right of the road leading from the plain to the mesa, about opposite the old Polakka house — an offering is deposited after a Buffalo dance. The place is only a few feet from the road and is somewhat hidden from the sight of passers-by. The offering is a notched stick with attached feathers; it is called the "sun ladder," a figure of which is published in an article on Hopi Minor Ceremonies, in a former volume of this journal.

The Buffalo dance was introduced into Walpi by Tanoan clans from the Rio Grande and was formerly celebrated with much fervor. The Hopi say that it was carried from Walpi to Zuñi¹ about 1886 and that they brought back in exchange for it the Howina, a Warrior or Harvest festival, which is occasionally celebrated on the East mesa.

Clowns' Shrines. — The Hopi, like the Zuñi, have an order of knob-headed personations called Koyimsi who appear in certain of their ceremonial dances. These are commonly called clowns and represent ancestral beings that once lived at a pueblo (now a ruin), Winema, not far from the junction of the Little Colorado and Zuñi rivers. Although these beings have the same name at Zuñi and Walpi, it is not necessarily true that one order was derived from the other. It is more probable that both came from a single source — one of the ruined pueblos of the Little Colorado.²

The shrine of the Koyimsi is situated near a great rock on a sandy hillock to the right of the road from Tawapa to Supela's house. It is a ring of small stones with an opening looking eastward.

There survives on the East mesa a persistent tradition that when the mission at Walpi was destroyed in 1680, the altar images, or "santos," were hidden in the sand near this shrine, but exactly where no one now knows, although all the old men agree that the burial site was not far from Sun spring.

Hütcioibi. — As the visitor approaches Walpi from the north the mesa narrows and descends a few steps, to rise again as one enters

¹ The Pleasure dance figured by Mrs Stevenson (pl. LXXXI, *Twenty-third Rep. Bur. Am. Ethnol.*) is a Buffalo dance introduced by the Hopi.

² The Koyimsi cult at Zuñi dates back to the earliest times of which the tribal traditions speak. It is old at Walpi also, where it was introduced by clans from the south.

the pueblo. This constriction of the mesa has caused the trail to narrow and the worn surface of the rock shows clearly the marks of the many footsteps that daily pass over it. On one side of the narrowed trail (pl. xxvii, fig. f) is a small overhanging ledge of rocks under which one can generally find prayer sticks and other offerings. This is a favorite place for the prayer offerings of the Warrior society, who perform similar devotions at Momtcita, their ceremony occurring in December. On the trail at this point is commonly placed a string to which is tied a feather; the two are called a "road" and are used as symbols indicating that a ceremony is about to begin¹ or is in progress in the pueblo. The trail is then said symbolically to be open, whereas when the string is laid across it, the trail is ceremonially closed.

Atutuskia. — This shrine is situated near Syskiamu's house, to the right of the road in foothills east of the mesa.

Niman Katcina Shrine. — This important shrine is situated near the southern end of the mesa on the east side just below the level of the terrace. It is inclosed by a number of flat stones set on edge, forming the sides, and covered by a thin slab of rock. This covering is removed in July at the celebration of the Niman Katcina, when offerings are placed in the shrine as has been described elsewhere.² The Niman celebrates the departure of ancestral gods called kalcinas, who are supposed to live in the under-world, the entrance to which is the sun house in the west. The shrine here described is symbolic of that abode.

Kalalini. — This shrine, which is situated on the mesa top, half-way between Hano and Sichomovi, is a simple uncovered circle of stones, without contents. Novices are said to make their offerings here at the time of the New Fire ceremony.

Tubpaka. — A small simple shrine to be found on the east edge of the mesa near Sichomovi.

Hombiki. — This shrine is situated in front of Tebewysi's house in Sichomovi. Novices of the priesthoods called Tataukyamû,

¹ The speaker-chief generally places a stringed feather at this place after he has publicly announced a ceremony.

² *Jour. Am. Archaeol. and Ethnol.*, 11, 1892.

Wüwütcimtû, and Kwakwantû are said to make offerings in this shrine at the New Fire ceremony.

Talatinka. — This is the sun shrine of Walpi in which offerings are placed at the Winter Solstice and at other ceremonies of the Sun priests. The novices of the Kwakwantû likewise are said to make offerings here at the New Fire ceremonies. The site of these devotions is about halfway between Walpi and Sichomovi, on the east rim of the mesa, above the trail. A Navaho home formerly stood not far distant. At the Winter Solstice ceremony this shrine is generally filled with prayer sticks, some double, others curved at one end, the latter being offerings of certain societies introduced by Patki and other southern clans.

Tuwanacabi. — This shrine, bearing the same name as the traditional pueblo¹ west of Oraibi, where the Badger people lived when the katchinas emerged from the under-world, is very sacred to the Walpians. It is situated in the foothills due south of the end of the mesa. In form this shrine is simple — a circle of stones with the opening facing the east, having on the west side the large rock so common in Hopi simple shrines. There is no idol or other sacred image here, but prayer offerings are rarely wanting. Offerings of the following kind were observed there just after the celebration of the Flute ceremony in the winter of 1900.

The most important of these were two prayer sticks dedicated to Cotokinuñwû, a sky supernatural, introduced into Walpi by the Flute and Patki families, who formerly lived near the Little Colorado, south of Walpi. It appears from tradition and from a study of ceremonials that the Hopi conception of Cotokinuñwû was the highest ideal of a Sky god attained by the development of their own religion; when they learned of monotheism from Christian missionaries, they immediately identified the latter's deity with their own greatest god. The offerings made as prayers to this being are occasionally called by the Hopi, when speaking to white people, "Jesus pahos."

¹ The custom of naming kivas or shrines after ruins is not uncommon among the Hopi. Thus Moñkiva was formerly called Pakatcomo, from the ruin of that name marking the place where the Patki once lived. There was also at one time a kiva on the East mesa called Homolobi for a similar reason.

The best idol of Cotokinuñwû known to me is that on the altar of the Flute priesthood at Oraibi. It apparently represents a bird-snake concept, the head having a curved apical extension, reminding one of some of the Mexican pictures of Quetzalcoatl. Its wings are conventionally made and the two long legs are decorated with the zigzag lightning symbols of the Plumed Serpent. Certain of the characteristics of the same Serpent god, as rain-bringing and thunder-making, suggest the attributal name Thunder Bird or God of Thunder applied to this being, but the image is rather that of the horned than of a feathered serpent god; the cult of the latter, it will be remembered, reached a complicated development in southern and eastern Mexico.

The idol of Cotokinuñwû on one of the altars of the Flute fraternity of Oraibi gives an excellent idea of the Hopi concept of this bird-snake supernatural, and we have also good material in the paraphernalia and idols of the Patki clans from which to study his variant. In this case, as shown by the effigies of the Plumed Serpent employed in the Winter Solstice, the snake element predominates, but there is still found the survival of the bird element and the Sky god conception. The Kwakwantû, a warrior brotherhood of these clans, wear helmets with the curved horns characteristic of Cotokinuñwû¹ and carry in their hands wooden slats curved in the form of small plumed serpents.

The offerings of the Flute chief to Cotokinuñwû are made in the Tuwanacabi shrine and are flat double prayer sticks tied side by side, each with a face painted on one end, and pointed at the other. Each stick has a packet of meal and a feather tied about midway of its length. In addition to the offerings to the God of the Sky there were noticed in this shrine many green prayer sticks. These were about the length of the finger and were deposited by the Flute priests to bring rain. The numerous other prayer sticks of this kind that occur in this shrine are offerings of former years.

There was also in the same shrine a small prayer stick made of two parts tied together. Both of the components were without facet but one was painted yellow and the other green. This was

¹ The Plumed Snake symbols in this idol are indicated elsewhere. The curved horn of Cotokinuñwû recalls that on some images of Quetzalcoatl.

an offering of Naka, the chief of the Kacina clan, to his ancestral gods. The shrine contained also numerous single sticks painted black, placed there by the Snake priesthood.

Lalakon Shrine.—When in their wanderings from the south the Patki people arrived in the valley now called the Walpi wash, they were invited to exhibit to the Walpians their magic power in causing rain and lightning. This exhibition took place near the spring Tawapa which, on that account, became sacred to them. Two societies of priests, called the Lakone sorority and the Kwakwantû fraternity, were introduced into Walpi at that time. Both of these priesthoods have shrines at or near Tawapa.

Sowinakabu.—The Rabbit-ear shrine is situated just below the terrace at the side of the trail from Walpi to Tawapa.

Uñatanopi.—This is the shrine that contains or covers the heart of the mythic Hawk (Kica), and in this connection the following story is repeated: In prehistoric times Kica (Hawk) and Tcübïo (Deer) tested their powers by running a race.¹ Hawk was very fleet, but Deer prayed for rain, which fell in torrents and drenched Hawk's wings so that he flew with difficulty and but slowly. Hawk lost the race and Tcübïo slew him, cutting out his heart and burying it in this place. As Hawk expired, he murmured that all youths who should pray at the shrine where his heart is buried should be fleet of foot. Hence foot racers often deposit their offerings at Uñatanopi.

Talaviva.—This shrine is situated on the north end of the mesa, back of Hano and just above the gap. Near it are the grooves where the warriors rested their arrows when they shot at the Utes or other hostiles coming up the trail. The shrine contains a few fossil logs or fragments of silicified wood.

Moñwa.—This devotional spot is situated just north of the main building at Hano and, like the shrine at the gap, contains a coiled stone. When visited, many Hano prayer sticks (*o'dope*) and feathered strings (*pclatciye*) were found.

Sheep Shrines.—In almost every Hopi sheep corral there is a place where clay images of the animal are placed as prayers for the

¹ The idea of testing the relative power of magic forces by racing is truly aboriginal.

increase of domestic animals. These images are commonly made in the Winter Solstice ceremony and in the Warrior festival that follows it. During the former celebration prayers are made to Mu-yinwû for the increase of everything the Hopi desire, and at that time wish or prayer feathers are tied to peach trees, wagons, legs of chickens, tails of horses and burros, and to every other possession of the Hopi. Like prayer offerings are placed in all the shrines and at every spring.

The sheep shrines lie on the east or sunny side of the mesa, about halfway from the terrace to the rim, and were placed at that point as a protection against coyotes and marauding Indians. Of late other corrals have been constructed on the terrace, which offers a larger space than the talus of the mesa.

SPRINGS AS SHRINES

In a general way every spring is supposed to be sacred and therefore a place for the deposit of prayer sticks and other offerings. Some of these springs, as Tawapa and Moñwiba, are supposed to be specially consecrated to the Great Serpent or Sun, others to some lower divinity, but every spring is a place of worship and hence a shrine. There are many springs near the East mesa, some of which still flow; others have been filled with drifting sand and, although no longer yielding water, are still places where offerings are made. It requires constant diligence to keep the springs from filling with sand, and from time to time, under direction of the village chief, the male population dig out the sand that has drifted into them.

Near distant ruins are likewise traditional springs from which water is obtained for use in certain rites or ceremonial proceedings. When water is thus obtained, prayer offerings are customarily deposited. While the majority of springs are dedicated simply to the Rain gods, a few are special homes of a Germ god, the Sun, or the Plumed Serpent, or all combined.

Some of the largest springs are believed to be inhabited by supernatural beings. The Great Plumed Snake is supposed to live under the Sun spring and offerings to him are made at that place.¹

¹ Springs are often regarded as homes of the gods and sometimes as entrances to the under-world, where divinized personages dwell, or as windows out of which they look.

In the Flute ceremony a prayer stick is biennially deposited with ceremony in the bed of the same spring by a man who sinks under the water for that purpose. Water from sacred springs, especially those associated with early migrations, is deemed most efficacious in medicine making. Several springs are supposed to have been miraculously formed by early chiefs, who on that account have come to be regarded as supernatural personages.

Ispa.— This spring is situated near the main trail from the plain to the gap, Wala, and lies just above the neighboring peach trees. It has a heavy flow and is capable of supplying the water for all the three villages as well as for the houses clustered about it. A large number of prayer sticks are always to be found below an overhanging roof in the rear of this spring at the edge of the water.

Uñpa.— This spring, now filled with drifted sand, is on the south side of the hill called Sikyaowatcomo, the site of an early settlement of the Hano. Although now no longer used, offerings are sometimes placed in the sand above the spring, thus keeping up an old practice. Except from this custom and from traditions, no one would know that there ever was a spring at this place.

Wipo, which lies on the west side of the East mesa, a short distance north of Kanelba, is one of the finest springs in the Hopi country. It is a place of offering for several societies, among the most important of which is the Flute. There are terraced gardens and evidences of house walls near this spring, indicating a considerable ancient population in the neighborhood.

Wiñpa.— Site of a spring a few miles north of Sikyatki, near a ruin once occupied by the Katsina people. This spring, once strong, is now dry and filled with sand. Its walls are made of well-dressed stone laid in circular form. Near this spring are walls of an old pueblo of small size.

Kwastapa.— This is one of the springs on the west side of the East mesa at which the Flute and other fraternities deposit their offerings. Like Wipo and Kanelba, it was a halting-place in the migrations of the Flute clans and is supposed to be of mythic origin.

Kahabipa.— This water, labeled on our maps Comar spring, takes its name from Koma, a Hopi who is said to have once had a house near it.

Kahabiobi. — Little is known of this spring except that it is near the one just described or between it and the Hopi butte.

Sipi. — This spring is not far from the Hopi butte (Custapoñtukwi) and is visited by the chiefs of the Kwakwantû for water used in the New Fire ceremony and the Winter Solstice ceremony. To it novices of this fraternity are sent in their initiation ceremonies. The Patki and other southern peoples stopped at this spring in their migration northward from Homolobi or the settlements along the Little Colorado.

Cakwaskpa. — A small spring near the Giant's Chair.

Hutchimopa. — A feeble spring in the plain below Walpi. There is another spring of the same name not far from Sikyatki.

Moñwiba. — This large spring, situated near the trail leading from the plain to Hano, on the right hand side, is dedicated to the Hano Plumed Serpent, Avaiyo. It is one of the few large walled springs with a pathway leading down to the water. Moñwiba was dug out within a few years; at the time a festival was held, the workmen personating the Snow Katsina wearing masks on which were depicted the heads of plumed serpents. In the March dramatization, exercises are performed at this spring with the effigies of the Great Serpent of Hano. Tawapa is the home of the Walpi Plumed Snake; Moñwiba, of that of the Hano.

Amipa. — A small spring used by farmers and others, but situated far from the pueblos and consequently available only occasionally for drinking purposes.

Sikyatkipa. — This is the old spring of the ancient Sikyatki, the Kokop pueblo, from which the former inhabitants of that town obtained their drinking water. At present the water is not potable but offerings are still placed on the edges of the spring by the chief of the Kokop clan.

Tawapa. — The great Walpi Sun spring, situated at the foot of the mesa, east of Sichomovi. When I first visited it, in 1890, there was not a single house in the neighborhood and the surroundings were in a perfectly natural condition. Lately, the day school was built near Tawapa and the name of the latter was changed. Tawapa is supposed to be the home of the Plumed Serpent, and the Lala-kontû, Kwakwantû, and Flute priesthoods use water from it in

certain ceremonies. The Patki family are said to have camped near it after they left Pakatcomo, their last pueblo before reaching Walpi, and here they performed the rites that caused the mist to come and produced the lightning that so frightened the women of Walpi. Tawapa is much revered by the Flute people also, who, like the Patki, came from the south, and here they perform biennially one of their most impressive ceremonies, in the course of which their chief sinks under the water and there deposits prayer sticks.¹

Tatacpa. — This spring lies near the coffin-shaped butte in full sight southeast of Walpi.

Numupa. — This spring is situated at the entrance to Keams canyon, on the right hand side. It yields an abundant supply of water, the flow having been much augmented by the care bestowed on the spring.

Tovovepa. — This good spring also is situated at the entrance to Keams canyon.

Other Springs. — In addition to the places of prayer above mentioned, the Hopi deposit prayer objects at the following springs: Kanelba, Hokonaba, Muzriba, Pehuba, Wukokoba, Honaupa, Pisaba, Anwucba, Yoyainiba, Yapa, Kokyanba, Tubuskia, Anapulaba, Yohopa, Takaplapi, Pepsiba, and the four springs near old Awatobi called Leñoba, Tetuiba, Pisaba, and Tcübpa. The foregoing list shows that the East mesa Hopi have many springs, and that the duty of supplying the water with prayer offerings accounts for the activity of the people in making offerings.

If we accept the broad definition of a shrine as a place of worship, naturally such rooms as kivas should not be omitted. For obvious reasons these are not included in this account.

I cannot pass by certain sacred places especially revered by particular clans, a typical example of which was called to my attention by the governor of Walpi about six months after the great smallpox epidemic in 1899. During my work at Walpi in 1900, Hani told me one evening that the inhabitants of the East mesa were much troubled because the mythic Badger had emerged from the under-world and was digging up the graves of those who had

¹ *Jour. Am. Ethnol. and Archaeol.*, 11. It is claimed by some of the Hopi that these southern clans introduced into Walpi the custom of making prayer sticks.

died of smallpox the preceding year. Hani declared also that the stone that usually covered the shrine of Badger had been removed to allow the inmate to leave his home in the under-world.¹ It was then discovered that some shrines were practically symbols of the entrance to the under-world realm of the dead, and regarded in the same way as springs or kivas.

TRAPS MISTAKEN FOR SHRINES

Among several constructions in or near Hopi pueblos, ancient and modern, that have been mistaken for shrines, may be mentioned coyote pitfalls and rabbit traps; one of the former, from near Sikyatki, is figured in the accompanying illustration (pl. xxvi, fig. c). As here shown the construction consists of three flat stones set upright on edge, forming a box with one side and the top open. The missing side gives entrance to the trap and the upper stone is seen through the opening. When the trap is set, this upper stone is weighted, and propped up with a stick to which is attached a piece of meat or a rabbit, and the coyote in pulling out the prop causes this stone to fall on its head. Similar traps occur about ancient ruins and have sometimes been mistaken for shrines.

CONCLUSION

It is not intended to consider in the preceding pages all shrines and springs about the East mesa, but rather to show the importance of many of them in the study of Hopi archeology. Ownership in shrines and springs, like that in eagles' nests, is hereditary in clans among the Hopi. The right to a spring is one of the most ancient of all ownerships in realty. So sacred are these places to the Hopi that they are associated with tribal gods and clan tutelaries; consequently, proprietorship in them is not abandoned even when the clans in their migrations seek new building sites.

It is desirable that those engaged in the study of Southwestern archeology should pay particular attention to the shrines in the immediate neighborhood of ruins, and, where possible, gather all

¹ Nothing would induce Hani to accompany me to this shrine, or sipapû, of Badger. I have never seen it, but have had it described by several Hopi whose descriptions recall the katchina shrine used in the Niman.

significant information regarding their use in modern times or since the ruins were deserted. This knowledge, taken in connection with legends of migrations, will aid in an identification of clan affiliations of former inhabitants of our Southwestern ruins. Although in most instances these shrines are now little more than rings of stones, occasionally an offering is found in them that reveals the presence of reverence in some mind, and it is generally true that the one who made this offering is related in some way to former inhabitants of the neighboring pueblo.

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BOOK REVIEWS

A History of the United States and its People, from their Earliest Records to the Present Time. By ELROY MCKENDREE AVERY. *In fifteen volumes.* Cleveland: The Burrows Brothers Company. Volume I, 1904, pp. xxxvi, 498; Volume II, 1905, pp. xxxvi, 458. Maps and numerous illustrations. Cloth, $6\frac{1}{2} \times 10$ in.

Two volumes of Avery's History of the United States have now been received, from which we may judge of the scope and method of treatment of this monumental work, which aims to give in concise and readable style a history of this country from the geologic shaping of the territory to the present day, without the burden of footnotes, but with ample bibliographic citation of authorities for every chapter. In explanation of his system the author states in his preface that, recognizing that the needs of the public are different from those of the professed student, he felt sure that the general public would approve an avoidance of "abysmal notes, overladen with trivial details," and says: "I thought that it was possible to write so that what was written would be actually read and easily understood, and still to avoid falling into the quicksands of blunders, partisanship, and curious delusions."

The opening chapter of Volume I deals with the Ice age and the vexed question of Glacial man in America. While the author is careful to give both sides and seldom commits himself to definite pronouncement, the general tone favors the claim for Glacial man. In our opinion the controversy is more equally balanced. Only one of the noted Trenton finds belongs unquestionably to the Glacial strata, while neither the Calaveras nor the Lansing human remains shows evidence of extreme age or marked variation from the modern type such as we find in comparing the human remains of Neanderthal, Spy, or Cro-Magnon with those of the historic European races. The Glacial American is still a theory.

The chapter on the neolithic Americans is an excellent summary of the results of archeological investigations by experts of the Bureau of American Ethnology and other workers, notably Mr Clarence B. Moore in the Southern states. In regard to the clan organization noted on page 30, it is in place to mention that this system, considered by Morgan and his disciples to be fundamental and universal, is now known to have pre-

vailed within only a limited area, being almost entirely absent from western United States north of the Navaho country, as well as throughout much of the great Canadian interior. The importance of interpreting ancient artifacts by comparison with implements and methods of the present day Indians is emphasized. Archeologists have sometimes regarded their specialty as a thing apart. The statement that no vitreous glazing was produced on pottery except by accident needs modification in the light of numerous recent discoveries in the Pueblo region beginning with Bandelier in 1892 (*Final Report*, in *Archæol. Inst. Papers*, vol. iv).

The chapter on "Maze and Myth" discusses the pre-Norse discoveries claimed for Chinese, Irish, Welsh, Arabs, and others. The Irish claim does not rest, as would appear from the wording of the paragraph on page 65, on Irish authority alone, but largely on the Scandinavian chronicle of Iceland, the *Landnama-bok* and the most ancient Scandinavian sagas. It is definitely known, as noted by Humboldt sixty years ago, that Irish monks were established in Iceland as early at least as the year 795, preceding the Norse by nearly a century, while the story of a Christian Irish colony on the mainland coast of America, based on the reports of shipwrecked Norse voyagers from Iceland, was so firmly believed in the tenth century that the unknown western land was known in the sagas as "Great Ireland." The earlier story of St Brendan's voyages is more or less mythic, and no recognized historian claims that Patrick was ever in America. The subject is discussed at length in De Costa's *Pre-Columbian Discovery of America*. The early Scandinavian colony in Greenland was exterminated by the savages and disappeared from history after a prosperous existence of more than three centuries. The same fate may have overwhelmed other and earlier colonizations before clans and provinces were welded into nations.

For some reason not apparent, the chapter on "Columbus and His Great Idea" is written in a spirit of hostility to the discoverer, following Winsor, who accuses him, either directly or by implication, of nearly every meanness and crime in the calendar except murder. Notwithstanding this, it will be difficult to persuade the student that Columbus was other than what the world's verdict has long since conceded — a sincerely good man, of noble impulse, lofty ideal, and infinite patience, to whose overmastering intellect the world owes the greatest debt of the century. When we read on page 143 that the journal of Columbus while cruising about the islands is full of hope that with God's help he might find gold, but "not a word now of the conversion of the heathen," we are not prepared to find on the next page a quotation from the same journal in which

the discoverer proposes to master the language of the Indians in order to "learn the riches of the country and make endeavors to convert these people to our religion." The characterization of the successful outcome of the voyage as a "triumph over the sneers of monks and scoffs of sages" seems rather gratuitous in view of the fact that during the long period of waiting and discouragement Columbus and his sons found shelter, food, and sympathy in the Franciscan monastery of La Rabida, and that the successful interview with the Spanish Queen was brought about by the devoted and untiring effort of the prior of the same monastery (pp. 124, 128). The chapter on "Columbus' Fourth Voyage" was evidently drawn from other sources, judging from the eloquent eulogy at its close.

Several chapters are devoted to the later Spanish explorations and conquests, and we are reminded, from Gomara (p. 230), that many voyages were made by various navigators in the first years after the discovery, which were afterward forgotten, as their only result was the impoverishment of their projectors. There can be no doubt that some of the early charts about which there is controversy, as the Cantino map, may embody information obtained by now unknown discoverers. A royal commission may give the stamp of authority, but it is no proof of priority. The traces of Spanish occupancy in Florida, noted on page 266, do not date from León's time, but from the actual settlement period subsequent to 1565. The great work of Las Casas in securing protection for the Indians against the barbarous treatment of the first adventurers receives full credit. It is well to remember that the cruelties of Balboa, Cortés, Nuño de Guzman, and De Soto were perpetrated within the first half century of the discovery, before administrative methods could be either formulated or enforced. Even before the close of this period schools had been established for the education of Indian youth, and missionaries were introducing the arts of civilization among the natives. In 1542 concurrent proclamation by the Pope and the Emperor provided for gradual emancipation of Indian slaves throughout Spanish America, and prohibited the further enslavement of Indians on any pretext whatsoever. For the eastern part of De Soto's route the Nineteenth Report of the Bureau of American Ethnology is taken as authority. The correct date for the founding of Santa Fé (p. 301) is 1605 (Bandelier, Hodge).

The work of Spanish colonization in the United States, both east and west, needs more ample treatment than it receives in the first two volumes. The conquest and settlement of New Mexico, after Coronado, the great Pueblo revolt, the final reconquest, are noted in only a few brief lines in

the first volume and not at all in the second, which deals entirely with the eastern sections and comes down to 1660. The colonization of Florida, the establishment of the Apalachee and Timucua missions, the building of roads and planting of orange groves, the opening of mines in the foot-hills of the Alleghenies, and the important Indian fishing trade between Florida and Havana, are not noted beyond the single reference to the founding of St Augustine. It may be that these things are reserved for a later volume. If not, the omission should be supplied from the Spanish historians or from Bandelier, Shea, Lowery, and Hubert Bancroft. The work of Spain as the pioneer of civilization in the United States is not yet appreciated.

The chapter on Indians is brought up nearly to the date of publication. Further linguistic investigation within the last three years has somewhat reduced the number of distinct stocks and proven the former existence on the southern Florida coast of an Arawakan colony from the neighboring Antilles. The appendix chapter on Indian relations, with table of tribes and reservations, contains much valuable information in small compass. The conclusion of Thwaites that the Indian population of the United States to-day is approximately what it was in 1600 cannot stand. There has been a great diminution, as is shown in the "Indian" chapter, pp. 341-2. According to the best expert testimony, California alone a century ago contained almost if not quite as many Indians as exist now in the whole United States.

Volume II deals with the colonial period from 1600 to 1660, including the founding of Canada or New France, Virginia, New York, New England, New Sweden or Delaware, New Jersey, and Maryland. As explanatory of a part of this colonization the author goes into detail concerning the religious struggle in England from the time of Henry VIII to the Restoration, including the secession of the Puritans from the Established Church and the persecution of the Catholics under both, leading on the one hand to drastic penal laws in Massachusetts and on the other to generous toleration in Maryland.

The chapter on "The Evolution of a Colonial System" is of special value as defining the methods by which new nations were developed beyond sea, while the chapter on "Annexation and Confederation" shows how the principle of individualism, which was the ruling passion of the immigrants, led ultimately and logically to a united republic. "The migrations from the old world to the new differed largely from those that had changed the character of European society in that they were individual rather than tribal. Having been led across the ocean by the

common love of liberty, Catholic and Protestant, Churchman and Puritan alike, they left old political forms in the old places, and applied their cherished principles in a way and to an extent peculiar to themselves. Students have devoted much time and learning to tracing the germs of some of our institutions back into the depths of ancient German forests, but the truth still stands that the ideas and institutions that characterize the nation are essentially peculiar to the nation." In other words, America is of the Americans.

The New Netherlands colony receives due attention, and we are reminded that until very recently our historians generally have based their statements, either directly or indirectly, on writers antagonistic to the Dutch settlement and ignorant of the language in which its records were written. The beneficent spirit of the Maryland colony as established by Lord Baltimore is clearly brought out. Notwithstanding his patent from royalty, which precluded all other claimants, the governor bought the lands from the Indians themselves, "thus anticipating by fifty years the policy of William Penn." Also, "from the beginning religious toleration of all Christian creeds was proclaimed and practised." Later on this principle of toleration was confirmed by definite statute drawn up by Lord Baltimore himself and passed by the Colonial assembly without amendment. "Thus for the first time in the history of the world did a legally constituted legislature enact religious liberty — for Christians." In spite of its discrimination against non-Christians, "the act was so liberal for that day that, in our day, it is difficult to appreciate it fully. . . . If any Protestant would carp because there were mists and exhalations that obscured what Bancroft has called the morning star of religious freedom, let him remember that within the preceding year a Puritan parliament in England had passed an ordinance imposing death as the penalty for 'maintaining with obstinacy' any one of eight enumerated heresies. In Maryland the promised toleration was everywhere continued and the prescribed penalties were never inflicted." All this in Maryland while the Puritan exiles in Massachusetts were banishing Roger Williams into the wilderness for preaching toleration, cutting off the ears and boring the tongues of Quakers, hanging men and women for religious opinions, and selling their children into West Indian slavery, as we find in the chapter on "The Puritan and the Heretic."

Of course these things are well known to students of American history, but the facts are not always accessible to the general reader and have seldom been presented with such clearness of statement and wealth of reference.

Some of the old traditional idols are shattered, though still with reluctant hand. The ten thousand — or is it fifty thousand? — descendants of the Mayflower will be somewhat surprised to learn from the roster that the number of adult passengers in that celebrated vessel who survived the winter was only twenty-six, all told, including sailors and a servant boy. The still more numerous descendants of Pocahontas will rejoice to know that the romantic story of Smith's rescue "has not been absolutely disproved."

The author's style is clear and concise, without long argument or dissertation, for all of which the reader is referred to the ample classified bibliography at the end of the volume. At the same time, any substantial difference of opinion is always plainly stated. The tables of contemporary rulers and of colonial governors add much to the understanding of the narrative. The numerous illustrations — portraits, autographs, facsimile titles, views, and maps — all are carefully chosen and finely executed, and the prefatory list is really a critical and historical catalog. In matter and arrangement the work is the best history of the United States that has yet appeared, while from the book-maker's standpoint the beautiful volumes are an equal credit to the Matthews-Northrup press and the Burrows Publishing House. The complete history as outlined will make fifteen octavo volumes of about 500 pages each, with such an index as the same publishers have given to the *Jesuit Relations*, and will be brought down to 1902.

JAMES MOONEY.

Anthropophyteia : Jahrbücher für Folkloristische Erhebungen und Forschungen zur Entwicklungsgeschichte der geschlechtlichen Moral, etc. Herausgegeben von DR FRIEDRICH S. KRAUSS. II Band. Leipzig : Deutsche Verlagsactiengesellschaft, 1905. Sm. 4°, xvi, 480 pp.

The second volume of the great work on sexual folklore, by Dr Krauss of Vienna, is at hand. It is issued with the collaboration of a number of distinguished scholars and includes the whole range of custom, story, proverb, riddle, charm, and song bearing on the subject as found in Vienna, Berlin, and the South German provinces, Servia, Hungary, Elsass, Sicily, and among the Gipsies. Original texts are given in German, including dialectic forms, Servian, Magyar, and Italian, with glossaries of special terms not known to dictionaries. While it is obviously impossible to particularize, it may be said that the work gives proof of a degree of beastliness still existing in the daily life of whole European communities hardly to be matched even among the Australian savages. Most of this, of course, is under the surface, but in many sections it is

an ordinary feature of national custom, as in Hungary, where young men and women dance together to the words of improvised obscene songs, while their elders look on approvingly. As usual the most sacred things are held up to filthiest ridicule. As the reviewer has already had occasion to remark in connection with the first volume (*American Anthropologist*, 1905, VII, 127), it might be well for our statesmen to know enough of this work to ask themselves seriously how much of such material they care to incorporate into our American civilization and citizenship. As a contribution to dialect study the volume has a special value.

JAMES MOONEY.

Bibliothek auserwählten serbischer Meisterwerke, mit literarhistorischen Einleitungen. Herausgegeben von DR FRIEDRICH S. KRAUSS. Leipzig: Deutsche Verlagsactiengesellschaft. 1906.

Band V — *Die Blume von Cannosa — Mater Dolorosa: Zwei Novellen von VID VULETIĆ VUKASOVIĆ.* Band VI — *Liebe und Leben im Herzogland — Zwölf Erzählungen von SVETOZAR ČOROVIĆ.*

Two more booklets of the series of Servian masterworks, translated into German and edited by Dr Krauss, have appeared from the Leipzig press. Volume V contains two short stories by Vuletić, one of the younger generation of Servian writers, born near Ragusa in 1853 of parents who had emigrated from Herzegovina. The greater part of his active life has been spent as a teacher in the higher schools of Ragusa, his leisure hours being devoted to authorship, usually under a *nom de plume*, and to the study of Servian and Dalmatian antiquities and folklore, in which he is a recognized authority. As a story-teller his style is simple and of the people, and his analysis of womanly character is especially delicate.

In the eleven short sketches of Volume VI the Doctor introduces for the first time to Western readers a young writer who he predicts will yet be known as one of the greatest literary geniuses not alone of Servia but of the Slavic race. In speaking of Servian things it should be noted that only about one-sixth of the 7,000,000 people who use the Servian language are in Servia proper, the remainder constituting a more or less important element in the adjoining provinces of the Balkan region, the chronic unrest in that quarter being largely due to the effort of the dismembered national fragments to come together. Čorovic himself was born in Herzegovina barely thirty years ago and began his literary career when only fourteen years of age. At twenty he founded in Mostar a journal for the express purpose of building up a national Servian literature, with

such success that from the Adriatic to the lower Danube *The Daybreak* is now regarded as the exponent of a common heritage. The frontispiece portraits are indicative of intellectual breadth and vigor.

JAMES MOONEY.

Berittene Infanterie in China und andere Feldzugs-Erinerungen. Von GEORG FRIEDERICI, *Hauptmann a. D.* Mit 70 Abbildungen im Text und einer Karte. Berlin: Dietrich Reimer (Ernst Vohsen), 1904. 8°, 355 pp.

This work deals with the writer's experiences as captain of a company of German mounted infantry in China during the Boxer uprising in 1900-01, and is altogether one of the most interesting and instructive books on China that have appeared in a long time. The writer is a master of English and is well acquainted with America, having traveled extensively in the United States and Mexico and having resided for a time in Washington, and, as former Lieutenant Friederici, is already known for his study of our Indian policy under the title of "Indians and Anglo-Americans." He is also an authority on Indian things generally, and an acknowledged expert on the subject of mounted infantry from the earliest period. Spurred on by the double love of soldier's adventure and scientific observation, he was one of those to respond to the Kaiser's call of "volunteers to the front" for the rescue of the imperiled legations.

The opening chapter deals with the mobilization, the embarkment, and the long voyage around the coast of France and Portugal, through the straits, and along the Mediterranean to Port Said and the Suez canal, down the Red sea and by the Indian ocean to Singapore, the world's "museum of races," and on to Ta-ku, the landing port for Tientsin and Peking. The author shows himself familiar with the history of every point of interest along the route. The combination of home spirit and practical method so characteristic of the German even when he goes soldiering is manifested by the organization of singing clubs and language classes almost before the ship is well under way, the celebration of every birthday, and later the detail of men from winter quarters at Yangtsun to procure a suitable Christmas tree. The barracks canteen — whisper it softly! — had three large orchestral instruments. The company mascots ranged from "Prince Tuan," a donkey, and Li Hung Chang, a billy-goat, down to geese and ducks. A pleasant feature was the friendly feeling shown toward one another by the troops of the different allied nations, particularly the warm comradeship established between the Germans and the French.

But there is another side to the shield. We get glimpses of the meaning of war when we read of the desolated cities, the people shot down when they chanced to come too near the pickets, the village fired when the villagers were not prompt with the war indemnity demanded, and the troops of homeless dogs which "were very useful to clear the country of corpses." We learn that the loud explosions from the burning houses came not from ammunition hidden by the Boxers, but were caused by the bursting of the bamboo supports. Later on we are told that the work of identifying the slain German soldiers for burial by their comrades was very difficult, as nearly every body had been so mutilated as to be unrecognizable.

In regard to "lît" and the general disregard for the rules of civilized warfare by white troops when dealing with people of another race and culture, the author claims that these things are universal and inevitable under such circumstances, and that no one of the allies can claim superior merit in this respect. He has something to say about our own Chivington massacre and negro lynchings, and makes sly reference to a certain notable ball once given by the Chinese minister in Washington, where guests who had intruded without invitation, after having eaten and drunk to satiety, proceeded to carry off everything portable as souvenirs of the happy occasion, even to the fur coats of the diplomats. The brutalizing effect of warfare with a savage or half-civilized foe is dwelt on, particularly in China, where, from immemorial custom, "every corpse is mutilated and every prisoner tortured."

We are given descriptions of Tientsin and Peking, the great wall, the street scenes and noises, the cultivated fields with their various products, the poisonous river water which must be clarified with alum to be drinkable, the house-building and furnishing, and some little note of the home life so far as it could be observed in war time. Every country has its own smell, quoting from another author, and the captain describes the all-pervading smell around Tientsin in the summer season as "simply infernal." There are some interesting paragraphs on the jargon words which the troops picked up in their daily contact with the coolies, but the American reader may look twice before recognizing in *dschunke* and *tschau-tschau*, the familiar junk and chowchow. The pages on the several breeds of native horses are especially valuable from the military point of view. The author's general conclusion seems to be that China of to-day is about in the status of Europe in the sixteenth century.

And now, after nineteen months of campaign and garrison, during which the captain did not escape an experience with fever, the order

comes to break camp for the coast and the homeward voyage, the goodly feast is spread, and the comrades for the last time turn down their glasses to the chorus of the Song of the Mounted Infantry :

Und sind die Wirren wieder hier beendet,¹
 Und herrscht in China Ruhe, Frieden, Glück,
 Dann kehr'n wir heim zum lieben Vaterlande
 Und denken an die schöne Zeit zurück.

The author combines the many-sided instructiveness of Humboldt with the irrepressible humor of Bourke in his happiest vein. The volume is handsomely bound, and printed in Roman type, and is enriched with seventy excellent illustrations from photographs, an appendix of notes which show wide reading in a number of languages, and a map of the province of Chi-li.

JAMES MOONEY.

Mat and Basket Weaving of the Ancient Hawaiians, Described and Compared with the Basketry of the other Pacific Islanders. By WILLIAM T. BRIGHAM, A.M., *Director, etc.* With an Account of *Hawaiian Nettings.* By JOHN G. STOKES, *Curator of Polynesian Ethnology.* Memoirs of the Bernice Pauahi Bishop Museum. Vol. II, No. 1, Honolulu: Museum Press, 1904. 4°, 144 pp., 153 figs., 16 pl.

As the title states, Messrs Brigham and Stokes treat exhaustively of Hawaiian matting, basketry, and netting, making extensive studies in other parts of the Pacific also for purposes of comparison. Dr Brigham has arranged his topics chiefly by materials, but the peculiar nature of each one of the substances used makes that order practically structural as well. Here is his table of contents :

Palm stems. Shields.

Pandanus. Hats, mats, pillows, baskets, sails, garments, covered cord, Fijian baskets.

Freycinetia roots. Baskets.

Fern stems. Baskets, fish traps.

Grass. Makaloa mats, rush mats, cord, bambu fans, combs, spears, clubs, sandals.

Australian baskets.

Hibiscus fiber. Mats of the Samoans.

Baskets of the Maori.

Banana fiber. Loom work of the Caroline islanders ; dress mats.

Olona fiber. Nets, koko puni pun.

The foregoing are the principal substances and types of workmanship,

but the very first pictures prove how Nature is ever present in that insular area with materials and suggestions. Figure 2 shows a good sized fish carried along by means of a ki leaf (*Cordyline terminalis*), the outer end wrapped in a half-knot about the body.

A list of the textile plants follows :

Flax (*Phormium tenax*).

Mulberry (*Broussonetia papyrifera*).

Pandanus (*Pandanus odoratissimus* et al. sp. and *P. Caricosus*).

Coconut (*Cocos nucifera*).

Hibiscus (*Pariteum tiliaceum*).

Banana (*Musa* var. sp.).

Grass, riki riki.

Sedge (*Cyperus laevigatus*).

Oloná (*Touchardia latifolia*).

Mamaki (*Pipturus albidus*).

Ieie (*Freycinetia arnotti*, and in Tahiti *F. demissa*).

Iwaiwa, ferns.

Ki leaf (*Cordyline terminalis*).

The dyes used are —

Crimson. By mixing inner bark of roots of nonufi'afra (*Eugenia malaccensis*) with sea water and lime.

Yellow. Turmeric and oil ; and from bark of the nonu (*Morinda cetrifolia*).

Purple. Young shoots of mountain plantain soa'a (*Musa fehi*).

Brown. By mixing inner bark of pani (?) with sea water.

Black. By burying in soft mud of a tan patch.

It is noted at a glance that the Hawaiians and other islanders dealt with in these excellent monographs were better provided with raw materials for their varied textile work than were the American Indians on the Pacific coast. The fact that the insular environment embraces also our Philippine islands, makes the study of the subject more interesting and pertinent.

How easy it was to convert a coco palm leaf 10 or 12 feet long into either a receptacle or a vehicle, as Mr Brigham shows in figures 1-4 ; but in the very next illustrations the same leaves shredded are wrought into the finest twills. Figures 8-16 are examples of checkerwork, twilling, twining, and openwork on fans with artistic handles and borders. On pages 8-15 will be observed the *playing* with oblique warps and wefts occurring in many parts of the Pacific, by which geometric and even animal forms are created on borders. These cunning islanders have

caught the knack of covering up strong coco fiber with finer materials (see fig. 28, p. 22). Indeed, from cover to cover in these monographs one is in the midst of surprises as he makes a mental comparison with the natives of the Pacific coast of America. Among the islanders are found coiled work on several foundations, with continuous and interrupted joining; false bottoms to baskets in different weaving, which recalls the Eskimo fashion of a piece of hide for a start; twined weaving, in every variety but one, which would make California Indian women stare; wicker work in rattan; pandanus mats and hats of leaves sewed together as in tule mats; tapa cloth in perfection. And yet the differences in the finished products are also striking. Forms, materials, functions, and designs vary greatly. The absence of the coco fiber and the long rattans eliminates from the American textiles the wonderful braids, knots, and borders, which by their ingenious varieties puzzle the student who tries to work them out.

Mr Brigham devotes a great deal of attention to mats and mat making; this is well deserved, for many of the mats require twelve months' work, and all of a woman's skill to complete. The finishing of a mat of this kind was made the occasion of no little rejoicing. All the women of the neighborhood familiar with the manufacturer were summoned on a given day to bathe the mat. On assembling, they proceeded to wash the mat in fresh water and after stretching it out to dry they adjourned to the house to partake of the feast provided by the hostess to celebrate its completion. The author is careful to collect the folklore of mats in Fiji and elsewhere.

The processes of weaving elaborate specimens is continued in soft basketry or wallets and in those used for clothing. Specimens from some of the islands are most gorgeous. The method of ornamenting the wallets is quite un-American, for in the last named all kinds of surface decorations are a part of the technic. Not so in the Malay-Polynesian area, where a stout wallet forms the inside, working part, while the most highly decorated outside is quite another affair.

The author devotes a section to the sandals of pandanus, dracæna, hau bark, banana, etc., whose use is made necessary by the glassy lava from the volcanoes.

In this connection attention must be drawn to the fact that the gourd takes the place of pottery in Hawaii and that the watertight cooking basket was not known. The double wallet is imitated in immense variety, however, in the basketry of all kinds, and netting of curious workmanship is closely wrought about the gourd. The last-named article furnishes the vessel, and the weaving or knotting the vehicle.

Mr Stokes has done thorough work on the nets and netting of the Hawaiians. Nature was bountiful to them in materials, giving the fibrous husk of the coconut (*Cocos nucifera*); the sedge, ahuaawa (*Cyperus laevigatus*); bast fibers of the hibiscus, hau (*Paritum tiliaceum*); waoke (*Broussonetia papyrifera*), the kapa fiber; and, most of all, oloná (*Touchardia latifolia*). Human hair and, later, horse hair, were enlisted for special uses. The shuttles and gauges employed were not different from our own. Nettings, according to the authors, had three functions: the coarsest for fishing; a special kind for featherwork (see Brigham, Memoirs of the Bernice Pauahi Bishop Museum, II, no. 1); and for kokos, or bags of netted or knitted cord, which, says Stokes, when suspended looked like inverted hemispheres superposed by elongated cones. Technically, each koko had three parts: the piko (navel), or starting ring, A to O; hanai (belly), the netted portion, methods of technic, A to M; and the alihi, or kakai, the cords looped or knotted into the upper edge of the hanai to serve for carrying or suspension. For gathering these there are two plans.

There are thirty-two pages of text devoted to the kokos; forty-nine illustrations, some containing several figures, and most of them working drawings.

Every student of the ethnology of the Pacific must have access to these excellent monographs.

O. T. MASON.

SOME NEW BOOKS

The Psychic History of the Cliff Dwellers, their Origin and Destruction. By Emma F. Jay Bullene. Denver, Colorado: The Reed Publishing Company, 1905. 12°, 256 pp., ill.

By the application of psychometry the author aims to show the origin of the Cliff-dwellers "and the general Norse relationship to the Mound Builders, the Toltecs, Aztecs and their descendants, the Pueblo Indians." [!]

Some Indian Land Marks of the North Shore. An Address read before the Chicago Historical Society at a Special Meeting held February 21, 1905. By Frank R. Grover. [Chicago: n. d.] 12°, pp. 259-292, ill.

The Anthropology of the State of S. Paulo, Brazil. Second enlarged edition. By Professor Dr Hermann von Ihering. São Paulo: Typography of the "Diario official", 1906. 8°, 52 pp., 2 maps.

A valuable treatise, with bibliography and two maps showing ancient and present tribal distribution.

Rionegra. Por B. Tavera-Acosta. Ciudad-Bolivar. (Venezuela.)
Tip. y Encuad. de Benito Jimeno Castro. 1906. 12°, xi, 150 pp.

Contains considerable anthropological data.

Supplementary Papers of the American School of Classical Studies in
Rome. Volume I. New York: The Macmillan Company, 1905.
4°, viii, 220 pp., ill.

CONTENTS: Stamps on Bricks on the Aurelian Wall at Rome. By George J.
Pfeiffer, Albert W. Van Buren, and Henry H. Armstrong.

La Civita near Artena in the Province of Rome. By Thomas Ashby, Jr. and
George J. Pfeiffer.

Carsioli: A Description of the Site and the Roman Remains, with Historical Notes
and a Bibliography. By George J. Pfeiffer and Thomas Ashby, Jr.

Die Aphrodite von Arles. By Arthur Mahler.

A New Variant of the "Sappho" Type. By Herbert Richard Cross.

The Christian Sarcophagus in S. Maria Antiqua in Rome. By Charles R. Morey.

The Text of Columella. By Albert W. Van Buren.

The Date of the Election of Julian. By Charles R. Morey.

Report on Archaeological Remains in Turkestan. By Richard Norton.

Strandliniens Beliggenhed under Stenalderen i det Sydøstlige Norge.
Af W. C. Brøgger. (Norges Geologiske Undersøgelse, No. 41.) Kristi-
ania: I Kommission hos H. Aschehoug & Co., 1905. 8°, viii, 330 pp.,
map, pls.

The Cahokia Mounds, Madison and St. Clair Co's, Ills. By Cyrus
A. Peterson and Clark McAdams. St. Louis, Mo., April, 1906. Broad-
side, 19 x 24 in.

A plan of the celebrated group of 69 mounds, with three half-tone illustrations and
brief description.

A Study in the Etymology of the Indian Place Name Missisquoi.
By George McAleer, M.D. Worcester, Mass.: The Blanchard Press,
1906. 80, 102 + 2 pp.

Explorations of the Baum Prehistoric Village Site. By William C.
Mills, M.Sc. Reprint from the Ohio Archaeological and Historical
Quarterly, Vol. XV, No. 1. Columbus: Press of Fred. J. Heer, 1906.
Roy. 8°, 96 pp., ill.

Sociological Papers. Volume II. By Francis Galton, P. Geddes,
M. E. Sadler, E. Westermarck, H. Höffding, J. H. Bridges and J. S.
Stuart-Glennie. Published for the Sociological Society. London: Mac-
millan & Co., Ltd.; New York: The Macmillan Co., 1906. 8°, xiii,
307 pp.

The papers treat of the subjects of Eugenics (Galton); Civics : as Applied Sociology (Geddes); The School in some of its Relations to Social Organization and to National Life (Sadler); Influence of Magic on Social Relationships (Westermarck); Relation between Sociology and Ethics (Höffding); Guiding Principles in the Philosophy of History (Bridges); Sociological Studies (Stuart-Glennie).

Material zur Sprache von Comalapa in Guatemala. Von Dr Jakob Schœmbs. Dortmund : Druck und Verlag von Fr. Wilh. Ruhfus, 1905. 12°, xi, 237 pp.

The So-called "Gorgetts." By Charles Peabody and Warren K. Moorehead. Phillips Academy, Department of Archæology, Bulletin II. Andover, Mass. : The Andover Press, 1906. 8°, 100 pp., 19 pl.

Kwakiutl Texts. By Franz Boas and George Hunt. Memoir of the American Museum of Natural History. The Jesup North Pacific Expedition. Vol. III, part III. Leiden : E. J. Brill, Ltd.; New York : G. E. Stechert, 1905. 4°, pp. 403-532.

Contributions to the Ethnology of the Haida. By John R. Swanton. Memoir of the American Museum of Natural History. The Jesup North Pacific Expedition. Vol. v, part 1. Leiden : E. J. Brill, Ltd.; New York : G. E. Stechert, 1905. 4°, 300 pp., maps, pls., figs.

The Koryak. Religion and Myths. By Waldemar Jochelson. Memoir of the American Museum of Natural History. The Jesup North Pacific Expedition. Vol. vi, part 1. Leiden : E. J. Brill, Ltd.; New York : G. E. Stechert, 1905. 4°, 382 pp., map.

Haida Texts and Myths. Skidegate Dialect. Recorded by John R. Swanton. Bureau of American Ethnology, Bulletin 29. Washington : Government Printing Office, 1905. 8°, 448 pp.

PERIODICAL LITERATURE

CONDUCTED BY DR ALEXANDER F. CHAMBERLAIN

[NOTE. — Authors, especially those whose articles appear in journals and other serials not entirely devoted to anthropology, will greatly aid this department of the *American Anthropologist* by sending directly to Dr A. F. Chamberlain, Clark University, Worcester, Massachusetts, U. S. A., reprints or copies of such studies as they may desire to have noticed in these pages. — EDITOR.]

GENERAL

- Bair (J. H.)** Human infancy — its causes, significance, and the limits of its prolongation. (Univ. of Colorado Studies, Boulder, 1905, III, 25-29.) Infancy "came as the direct result of increased cerebral capacity, and it affords a basis for learning by experience." Lack of pliability prevents acquisition or adaptation to the higher spiritual environment among lower beings, individuals, races.
- Barclay (J. W.)** Malthusianism and the declining birth-rate. (Ninet. Cent., Lond., 1906, 80-89.) From study of recent statistics B. concludes that man can and does increase subsistence faster than population can multiply; that a declining birth-rate marks the growing well-being of a people and does not indicate with even approximate accuracy the growth of the population; that the birth-rate declines with the death-rate, and their close correspondence suggests the existence of a natural law that ultimately controls conception. The superior fertility of the lower and the inferior fertility of the higher classes insures proper social mixture.
- Baudouin (M.)** La technique moderne des fouilles des sépultures mégalithes. (R. Scientif., Paris, v^e s., v, 136-141.) Discusses excavation and investigation, finds, and descriptions of work, restoration. Such investigations should be carried out according to a technique justified by experience and by competent *savants*.
- von Bechterew (W.)** Ueber Messung des Gehirnvolums. (Neurol. Cbl., Leipzig, 1906, xxv, 98.) Note on the water-method of measuring brain-volume, approved by Prof. B., — a device for this process was described by him in 1892.
- Blunt (W. S.)** The genealogy of the thoroughbred horse. (Ninet. Cent., Lond., 1906, 58-71.) Review and critique of Ridgeway's recent work. B. thinks with Piètrement that the horse was "first tamed in the northern plains, that is to say, in some of the cold regions of Upper Asia or Eastern Europe, where snow lay long in winter, and so may have suggested the using of animals for draught in sledges rather than for any purposes of riding." The modern Kehailan is indigenous to Nejd.
- Bongrand (Dr)** La valeur de l'expérimentation sur l'homme en pathologie expérimentale. (R. Scientif., Paris, v^e s., v., 362-365.) Dr B. maintains that subject and experimenter should not be one and the same person, that a committee is preferable to a single individual, that frequent repetitions are desirable.
- Boule (M.)** "La Fable éolithique." (L'Anthropologie, Paris, 1905, xvi, 726-731.) Résumés a recent article by M. de Lapparent in the *Correspondant* on "the eolithic fable." M. de L. facetiously suggests as a good title for a book that would add to the gayety of nations: *Les silex taillés par eux-mêmes*.
- Burbank (L.)** The training of the human plant. (Century Mag., N. Y., 1905, LXXXII, 127-138.) Argues in favor of differentiation in training (children should be reared for the first ten years of life in the open), being honest with children, keeping fear away, using sunshine, fresh air, nourishing food (avoiding overfeeding as well as underfeeding), metamorphosis of the abnormal, strengthening of the weak, etc. B. is against the marriage of "first cousins

reared under similar environments," and would prohibit altogether the marriage of the physically unfit. He believes also that "ten generations should be ample to fix any desired attribute."

Capitan (L.) *Les éolithes, d'après Rutot.* (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 274-279, 13 fgs.) Notes concerning the "eoliths" described and figured in Rutot's *Coup d'œil sur l'état des connaissances relatives aux Industries de la Pierre à l'exclusion du néolithique*, and the stratigraphy of the place where they were found.

— *et Papillault* (G.) *L'identification du cadavre de Paul Jones et son autopsie 113 ans après sa mort.* (Ibid., 269-273.) Brief account of the identification of the remains of Paul Jones on the basis of historical records, the busts by Houdon and the data yielded by the corpse itself, 113 years after death. See also *Bull. Soc. d'Anthr. de Paris*, 1905, v^e s., vi, 363-369.

Charvilhat (M.) *Anatole Roujon 1841-1904.* (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., vi, 256-259.) Appreciation, sketch of scientific activities and list of publications (257-259) of Dr A. Roujon. His writings were chiefly concerned with prehistoric archeology and ethnology. In 1873 he published in the *Bulletins de la Société d'Anthropologie de Paris* an article on *Photographies mexicaines établissant l'existence dans ce pays de Mongoloïdes et d'Australoïdes.*

Costantin (J.) *L'ancêtre de l'homme d'après les anciens.* (R. Scientif., Paris, 1905, v^e s., v, 1-6, 33-37.) Discusses the argonaut and its actions, the legends about it, etc., Mycenaean cephalopods, etc. The ancients thought the male of the argonaut was a young cuttle-fish. The cuttlefish was regarded as the "sketch" of a man. The ancestor of man was a "fetus-fish;" the cuttlefish, according to the old Assyrians, Greeks and Romans, was the precursor, if not the ancestor, of the human race.

Cutore (G.) *Di una rara monstruosità nell'uomo, perobranchius achirus.* (Anat. Anz., Jena, 1906, xxviii, 222-229, 2 fgs.) Describes, with bibliography, the case of an otherwise normal individual (with normal ancestry and connections) from Catania, whose left fore-arm is reduced in length, with the fingers represented by five little fleshy appendices.

Dwight (T.) Numerical variation in the human spine, with a statement concern-

ing priority. (Ibid., 33-40, 96-102.) Résumés recent important papers by Bardeen, Adolphi, and Ancel and Sencert, with criticisms, — in the main confirmatory of D's conclusions of 1901, except as to theory of irregular segmentation. Additional data from the Warren Museum collection are given (7 specimens). Dwight and Tenchini hit upon the idea of compensation independently at about the same time.

Fourdrignier (E.) *Les étapes de la céramique dans l'antiquité. Chronologie céramique. Vases Susiens. Poterie dolménique. Anciens procédés de fabrication.* (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., vi, 222-246.) Discusses early Athenian, Mycenaean, Cretan, Susian, neolithic pottery. According to F., "the origin of pottery goes back at least to the very commencement of the neolithic period." The dolmenic ceramic remains indicate a crude and infant industry.

Giuffrida-Ruggeri (G.) *Discussioni di antropologia generale.* (Mon. Zool. Ital., Firenze, 1905, xvi, 148-158.) Discusses and criticizes chiefly Stratz's recent work. *Naturgeschichte des Menschen* (Stuttgart, 1904), in which he sets forth a monogenetic conception of the precocious autonomous evolution of the human stock, exclusive of the anthropoids. Dr G.-R's scheme differs from S's in regarding the white race not as a direct descendant of the primitive type, but as the last chronological succession of the three principal human directions (black, yellow, white).

Grahl (F.) *Angeborener ausgedehnter Naevus pigmentosus in Verbindung mit Pigmentflecken im Gehirn.* (Beitr. z. path. Anat., Jena, 1906, xxxix, 66-81, 1 pl., 1 fg.) Describes a case of extensive *Naevus pigmentosus* associated with pigment-spots in the brain, — newborn well-nourished female infant of 50½ cm. from Cologne. On the optic thalami are two small dark spots; part of the cerebellum also shows coloration. The body has a broad band of color around the middle and spots occur also elsewhere.

Hadley (A. T.) *Mental types and their recognition in our schools.* (Harper's Mo., N. Y., 1905, cxi, 123-129.) Proposes grouping of students "according to their mental habits" as an improvement for the mass on the elective system so successful with the few.

- Helm** (K.) Die Heimat der Indogermanen und der Germanen. (Hess. Bl. f. Volksk., Lpzg., 1905, IV, 39-71.) Discusses the question of the primitive home of the Indo-Europeans and the Teutons from the points of view of anthropology, culture-history, archeology, etc. H. cites proof of the continuity of west European culture, — "the men of the shell-heaps were the ancestors of those peoples (*i. e.*, the Teutons) who, proceeding thence in historic times, occupied a large portion of Europe and other continents." They formed a small section of the Indo-Europeans, who had a much more extended primitive home. The advances in culture noted in the later stone age are due, not to the immigration of a culturally superior people, but to the fact of independent development *in loco* of native stock, or their rise, slowly and laboriously under foreign influence to a higher stage of civilization.
- Laurent** (O.) La trépanation rolandique et la ponction ventriculaire dans l'arriération. (C. R. Acad. d. Sci. Paris, 1906, CLXII, 356-359.) Describes three experiments (girl of 4 months, boy of 10 years, child of 5 years), with more or less ameliorative results.
- Laussedat** (M.) Sur le relevé des monuments d'architecture d'après leurs photographies, pratiqué surtout en Allemagne. (Ibid., 435-438.) Discusses the restitution (common in Germany) of architectural monuments with the aid of photographs. From 1885 to 1905 some 835 monuments have been thus reconstituted in 185 different localities.
- Le Roy** (A.) Le rôle scientifique des Missionnaires. (Anthropos, Salzburg, 1906, I, 3-10.) Beside his first duty ("to propagate the gospel") the missionary, by his vocation, comes to have a knowledge of the country (geography), its social conditions, religious beliefs and practices, languages, etc. He must serve God, but he may be a discoverer and investigator as well.
- Libby** (M. F.) Hall on growth. Précis and comments. (Investig. Dept. Psy. and Ed. Univ. Colorado, Boulder, 1905, III, 1-23. Résumés G. Stanley Hall's *Adolescence* (2 vols. 1904).
- Loisel** (G.) L'œuf femelle. (R. de l'Éc. d'Anthr. de Paris, 1905, XV, 361-366.) Contains interesting data as to the nature of the female egg, female births, etc. In the rare cases where it was possible to differentiate it the female egg was distinguished from the male by being larger and better protected. Instances are recorded of a man having 26 girls in succession (no boy) by the same woman; another had 24 boys without a girl.
- von Luschan** (F.) Ziele und Wege eines modernen Museums für Völkerkunde. (Globus, Brnschw., 1905, LXXXVIII, 238-240.) Discusses the objects, nature, uses, etc., of a modern ethnological museum. For academic uses small collections are quite sufficient. Good photographs of objects, types, ceremonies, etc., can be well employed for instruction. Museums should be neither collections of rarities nor art-hoards. The "show side" must be divorced from the scientific. Neither school-boys nor Cook tourists need to rush past everything in the building.
- Marie** (Dr) et **Pelletier** (Madeleine) Craniectomie et régénération osseuse. (Bull. Soc. d'Anthr. de Paris, 1905, V^e s., VI, 369-373, 1 fig.) Discusses ineffective "this case proves the uselessness of craniectomy as a therapeutic means in idiocy"; trepanning in a male microcephal of 18 years. An osseous regeneration, almost complete, had taken place, contrary to the opinion generally entertained by surgeons and anatomists.
- Monseur** (E.) L'âme pupilline. (R. de l'Hist. d. Relig., Paris, 1905, LI, 1-23.) Treats of the folk-lore of the *pupil* of the eye. Endeavors to prove that "the *pupil* soul" was a very ancient conception, primitive man easily seeing in the image in the eye of him at whom he was looking, the guardian spirit, soul, etc., of the other. The "evil eye" is also discussed. The "little man of the eye" has a long ethnic history.
- L'âme poucet. (Ibid., 361-376.) Discusses "the Tom-thumb soul" in folk-lore, etc., — the idea of the soul as a little man an inch or so high resident in the head, etc.
- Montané** (L.) La infancia de la humanidad. (R. de la Fac. de Letr. y Ci., Univ. de la Habana, 1905, I, 168-183, 2 fgs.) Based chiefly on Verneau's *L'enfance de l'humanité*. Treats of prehistoric man in western Europe, the various epochs and their characteristics, etc.
- Moutier** (A.) De l'influence de la vieillesse sur la pression artérielle. (C. R. Acad. d. Sci., Paris, 1906, CLXII, 599-600.) Experiments of M. show that hypertension of the arteries is not as common in the old as is generally

- believed, and when it does occur is the result of arterio-sclerosis and not due to the normal evolution of the organism.
- von Negelein** (J.) Die Pflanze im Volksglauben. (Globus, Brnshwg., 1905, LXXXVIII, 318-320, 347-349.) Treats of the folk-lore of flowers (Teutonic and Indo-European), water-origin of flowers and flower-nymphs, flower-names for girls and their significance, flower-symbols, parallelism of human beings and plants, spring-lore, plant-medicine, etc., ancestral tree-worship, soul-lore, etc.
- Reinach** (S.) L'origine des sciences et la religion. (L'Anthropologie, Paris, 1905, XVI, 657-663.) R. argues that the cultivation of cereals and the domestication of animals is due originally to religion and superstition; indeed religion is at the beginnings of everything. The history of mankind is merely a sort of progressive laicization. Magic is the strategy of animism. This subject is further developed in the second volume of the author's *Cultes, mythes et religions* (Paris, 1906).
- Salomon** (P.) Description d'un fœtus achondroplase. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., VI, 303-308.) Describes, with some detail, a male achondroplastic still-born infant (almost at term), figuring since 1864 in the Dareste collection in the Lille Museum as phocomelian. In a future memoir Dr S. intends to study the rôle of achondroplasia in the production of phocomelian monsters.
- Schmidt** (W.) Die moderne Ethnologie. (Anthropos, Salzburg, 1905, I, 134-163.) First part, German text with French version on opposite page, — of a general discussion of the nature and extent of ethnology, its divisions, etc.
- Schrader** (F.) Sur les conséquences physiques et historiques du retrait des anciens glaciers. (R. de l'Ec. d'Anthr. de Paris, 1905, XV, 408-414.) Discusses the effects upon man and his migrations of the retreat of the glaciers. According to S., the human swarming of the neolithic epoch was due to the disappearance of the glacial régime and the gradual return of the temperate flora and fauna, and the attraction exercised upon a certain human group by these new conditions. The rapports of Asia and Europe are also discussed. To glacial Europe corresponded a more European Asia. As Europe became more habitable Asia became less. The desiccation influenced the evolution of the peoples, — beyond the hives of India and China lay barbaric tribes and nomadic hordes, where civilization was largely inhibited.
- Schwalbe** (G.) Zur Frage der Abstammung des Menschen. (Globus, Brnshwg., 1905, LXXXVIII, 159-161.) Critique — reply to a previous article by Kollmann. S. maintains that the Neanderthal man, *homo primigenius*, is the predecessor of the present human race, *homo recens*. Also argues against K.'s theory of the priority of small races, such pygmoid remains as have been noted being rather individual variations within the limits of one and the same race.
- Taylor** (J. W.) The Bishop of London on the declining birth-rate. (Ninet. Cent., Lond., 1906, 219-229.) Author concludes that the steady decline in the birth-rate is due to "artificial prevention" (both the legitimate and the illegitimate birth-rates are so affected, the latter being no longer a criterion of morality). The result is grievous physical, moral and social evils for the whole community. The paper of Barclay is severely criticized. See Barclay (*J. II.*).
- Thulier** (II.) Discours prononcé à l'inauguration du monument de Gabriel de Mortillet. (R. de l'Ec. d'Anthr. de Paris, 1905, XV, 385-388.) Brief appreciation of scientific activities, and list of chief publications.
- Tschepourkowsky** (E.) A quantitative study of the resemblance between man and woman. (Biometrika, Cambridge, 1905, IV, 161-168.) Discusses stature, cephalic index, nasal index, head length, facial index, relative arm length, with respect to the various peoples of the Russian empire (as reported by various authorities, particularly Ivanovski). In three of the characters compared woman is more variable than man, though in five the difference is not sensible.
- Verworn** (M.) Ueber die ältesten Spuren des Menschen. (Corr.-Bl. d. D. Ges. f. Anthrop., München, 1905, XXXVI, 63-64.) Discusses the question of the "eoliths," etc. M. concludes that "at the close of the miocene period there already existed a somewhat differentiated culture," — when man is silent, stones speak.
- Welldon** (J. E. C.) The children of the clergy. (Ninet. Cent., Lond., 1906, 230-238.) From the statistics of the

Dictionary of National Biography it appears that "the eminent or prominent children of the clergy since the Reformation have been 1,270," while in all English history the corresponding numbers for the children of lawyers and doctors are respectively, 510 and 350. The distribution of eminent children of clergymen among the various walks of life is discussed. In Scotland "the sons of the manse" have long had repute.

Woodruff (C. E.) Complexions of the insane. (N. Y. & Phila., Med. J., 1905, Repr., pp. 7.) Gives results of the records, by Dr Russell, of the N. Y. Commission in Lunacy, of the color of eyes, hair, and skin, of 1,439 insane individuals. The native-born insane seem to be of lighter type than the population from which they are drawn. According to Major W., blond invalids (tuberculous especially) should be kept north,—"only brunet invalids will do well in the south."

— The neurasthenic states caused by excessive light. (Med. Rec., N. Y., 1905, Repr., pp. 21.) Major W. holds that "the main result of excessive light, which is not of sufficient degree to cause necrosis of protoplasm, is some kind of a chemical breaking up which renders it parietic." The effects of the tropics on blonds, the good results of sanatoria in the north for southern neurasthenics, the therapeutic uses of light, complexions, seasonal mortality, etc., are briefly discussed. Old estimates of the excellence of sunny climes must be revised. The most healthful spot in the country, according to the last report of the Surgeon-General, is the northwestern corner, a very cloudy and rainy area.

— The identity of variations and modifications. (Amer. Med., Chicago, 1905, x, 661-665, 706-710.) After discussing various theories of variation, Major W. argues that "modification is a variation in the soma due to a temporary change in the environment"—both are identical and neither is hereditary unless the causes are repeated, and (paradoxically) each is hereditary as long as the cause exists. Return to the normal is almost a universal rule in all organisms, if the environment is restored. Similarity of environment may evolve similarity of types of man in widely separated areas, e. g., the Amazonian Leggs and the aquatic Malays.

EUROPE

Anderson (Nina) A tour in Corsica. (Cheltenham Ladies' Coll. Mag., Chelt., 1906, 27-35.) Notes on Bastia, San Fiorenzo, Ajaccio, Corte, Bonifacio, etc. At a church near Bastia is a collection of relics which includes a clod of earth from the garden of Eden, a sample of manna, Moses' rod, etc. The *bergerie* is typical of the more peaceful life of the people about Ajaccio of to-day, but it "has little in common with an English sheep-farm." Murder is still the national vice of the Corsican.

Batky (Zs.) Blaué Sgraffito-Geschirre. (Anz. d. Ethnogr. Abt. d. Ung. Nat.-Mus., Budapest, 1905, III, 48-50, 1 pl., 1 fg.) Describes briefly the blue "sgraffito-ware" of which a collection (20 jugs and 34 plates) dating from 1786 to 1846, is in the Hungarian National Museum. The flourishing period of this ware was 1799-1813; the earliest known specimen goes back to 1781.

Baudouin (M.) Découverte d'un menhir tombé sous les dunes et d'une station gallo-romaine aux Chaumes de Saint-Hilaire-de-Riez, Vendée. (Bull. Soc. d'Anthrop. de Paris, 1905, 1^{re} s., VI, 271-278, 2 fgs.) Describes, in continuation of previous article, the *Pierre du Trou d'argent* (a fallen megalith), a polished axe, some pseudo-flints, human bones and some dozen skeletons, Gallo-Roman vases, some copper or bronze rings, etc., found in 1902-1905 at what appears to be a Gallo-Roman "station," of the second or third century A.D.

— Les gravures sur os de l'époque gallo-romaine à la nécropole de Trousepoil, au Bernard, Vendée. (Ibid., 310-320, 6 fgs.) Gives account of graffiti, marks resembling the Roman figures, V, VI, XI, VII, VIII, IX, IV, X, and heads of animals, etc., on bones of the Gallo-Roman epoch found in 1902-1903 in the sepulchral pits of the necropolis of Trousepoil. They are probably ancient, isolated signs, only resembling Roman figures. E. Rivière reports similar "figures" from the necropolis of Hameau, Paris.

Bennett (J. I.) Æsculapius the miracle-worker. (Union Univ. Q., Schenectady, N. Y., 1905, I, 252-265.) A somewhat wit-moved discussion of the labors of "the John Alexander Dowie of the Greeks."

- Breuil (H.)** Prétendus manches de poignard sculptés de l'âge du renne. (*L'Anthropologie*, Paris, 1905, xvi, 629-632, 3 figs.) The Abbé B. argues that the so-called poniard handle of Langerie-Basse, which figures in G. de Mortillet's *Le Préhistorique* is not such but simply an incompletely finished piece of sculpture, as the figures of reindeer carved one behind another, e. g., from Bruniquel, indicate. Their exact use is undetermined, — they may have been clothes-buttoners.
- Brunner (K.)** Ueber Funde bei Iwno, Kr. Schubin, Posen. (*Z. f. Ethn.*, Berlin, 1905, xxxvii, 899-912, 19 figs.) Describes briefly nine finds (chiefly pottery urns, and other clay objects; stone hammer, flints, amber bead, etc.), from graveplaces of the early bronze age at Iwno in Posen. The human remains had quite disappeared.
- Busse (H.)** Urnenfeld bei Wilmersdorf in Kreise Storkow-Beeskow. (*Ibid.*, 1920.) Notes finds of urns and seven subsidiary vessels, stone hammer, bone beads, and other objects.
- Capitan (L.)** Présentation de silex de Guerville près Mantes, pseudo-éolithes. (*Bull. Soc. d'Anthr. de Paris*, 1905, v^e s., vi, 373-378.) Describes some "pseudo-eoliths," of the sort discovered by M. Laville at the cement factory of Guerville, near Mantes. These "pseudo-eoliths" are made by the machinery that breaks up the masses of slate and chalk (the latter often containing pieces of flint, etc.); they resemble closely the so-called "eoliths" of Rutot, etc.
- Recherches dans les graviers quaternaires de la Rue de Rennes à Paris. (*Ibid.*, 269-270.) Brief account of the discovery of a tooth of the rhinoceros tichorhinus and a tooth of a mammoth in the quaternary gravels exposed during the construction of the metropolitan subway in the Rue de Rennes, city of Paris. No flints of undisputed human make were found, except a few "eoliths."
- Congrès préhistorique de France, x^e session tenue à Périgueux. (*R. de l'Éc. d'Anthr. de Paris*, 1905, xv, 373-385.) Résumés papers read at the French Prehistoric Congress held at Périgueux Sept. 26-Oct. 1, 1905. A large portion of the communications dealt with "cave man" and related topics. A. de Mortillet read a paper on Bolivian primitive implements (stone spades, mallets, etc.), based on a collection made by him in the region of L. Titicaca.
- Charbonneau-Lassay (L.)** L'abri sous roche et les quartz taillés de Saint-Laurent-sur-Sèvre, Vendée. (*Ibid.*, 344-346, 4 figs.) Describes two "coup-de-poing" of quartzite of paleolithic type from the immediate neighborhood of the rock-shelter of St Laurent-sur-Sèvre. These are the only Chellean objects so far known representing a paleolithic industry in the Vendean granite.
- Cook (A. B.)** The European sky-god. III: The Italians. (*Folk-Lore*, Lond., 1905, xvi, 260-332.) Treats in detail of Jupiter, his names and appellations, characteristics, functions (sky-god, weather-god, water-god, earth-god), sacred-tree (oak, beech, poplar, mistletoe), symbols, the "golden bough," the *manes*, the king as an embodiment of Jupiter, recognition of Jupiter in popular heroes, latent belief in a human Jupiter, emperors and Jupiter, the king as representative of the sky-god, killing the effete king, the *Poplifugia* and *Regifugium*, the *Nones*, etc.
- Da Costa-Ferreira (A.)** La capacité crânienne, chez les criminels portugais. (*Bull. Soc. d'Anthr. de Paris*, v^e s., vi, 357-361.) Based on study of data of Dr Ferraz de Macedo. The author concludes that Portuguese criminals, in general, have a cranial capacity larger than that of normal individuals and are also more corpulent, — this corpulence is the chief factor in increasing such capacity. Determination of criminal type from cranial capacity is impossible.
- Elworthy (F. T.)** A solution of the Gorgon myth. (*Folk-Lore*, Lond., 1905, xvi, 350-352, 2 figs.) Adduces further evidence of the Perseo-lobster explanation.
- Favreau (Dr)** Ueber Kiesgrubenfunde bei Neuhaldensleben. (*Corr.-Bl. d. D. Ges. f. Anthrop.*, München, 1905, xxxvi, 63-66.) Discusses the probable age of the flints found in the Neuhaldensleben gravel-pits. These belong, according to the animal remains accompanying them, to the interglacial period.
- Fritsch (G.)** Eine verzierte Hirschgeweihstange. (*Z. f. Ethn.*, Berlin, 1905, xxxvii, 969-970.) Brief account of a piece of red-stag horn (ornamented with numerous marks all over one side and on part of the other) from Stargard in Lausitz.
- Giovanetti (—)** Quelques observations et corrections se référant au travail de M. Merejkowsky sur les crânes de la

- Sardaigne. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., vi, 287-288.) Corrects errors in a table of cephalic, nasal-facial and orbital indices of Sardinian skulls given by Merejkowsky in *Bull. Soc. d'Anthr. de Paris*, 1882, p. 164.
- Girard** (P.) Les origines de l'épopée en Grèce. (R. Int. de l'Enseignm., Paris, 1906, LI, 97-114.) Discusses Homer and the pre-Homeric Greece revealed in the last few years. The *Iliad* is relatively modern and composite. Neither it nor the *Odyssey* lies near the birth of culture. The "Greeks were the Greeks because they made Homer; and because in Homer they have set their ideal humanity."
- Gönczi** (F.) Brunnen und Steige im Göcsej. (Anz. d. Ethnogr. Abt. d. Ung. Nat.-Mus., Budapest, 1905, III, 7-12, 4 fgs.) Treats of the wells (usually in front of the houses) and stiles among the Magyars of Göcsej in the western part of the district of Zala. Sweep-wells (*csigáskutak*, "roll-wells"), tub-wells (*bodonkut*), their preparation, apparatus, etc., are described. The stiles formerly served for entrance into the yard or even the house.
- Groos** (W.) Die Murichowo, ein Gebiet für deutsche Forschung und Unternehmung. (Globus, Brnschw., 1905, LXXXVIII, 293-295, 1 fg.) Describes a European *terra incognita*, Murichowo on the river Vardar in Macedonia, which probably contains some of the descendants (non Slav in speech) of the first hordes of Asiatic Bulgars. It contains also a settlement of Germans, a "culture island."
- Günther** (C.) Coblenz und Umgebung in vorgeschichtlicher, römischer und frankischer Zeit. (Corr.-Bl. d. D. Ges. f. Anthropol., 1905, XXXVI, 57-59.) Brief account of prehistoric, Roman and Frankish remains in and about Coblenz. Paleolithic objects occur at Metternich and Rhens (flint implements, bones of mammoth, teeth, etc.); neolithic at Urmitz; Hallstatt at Neuhäusel. The early Roman period is represented at Urmitz, etc., while the city of Coblenz itself was the site of a *castellum*, and Roman remains occur all around. Frankish remains occur in Lützel Coblenz.
- Hahne** (H.) Ueber die Beziehungen der Kreidemühlen zur Eolithenfrage. (Z. f. Ethn., Berlin, 1905, XXXVI, 1024-1035.) Discusses the so-called "chalk-mill fragments,"—pseudo-eoliths,—and the recent articles in particular of Boule and Obermaier. These flints, which so closely repeat the forms of the famous eoliths, were first discovered by Laville at Mantes in France. Material analogous to that of Mantes is cited by H. from Sassnitz. See *Capitan* (L.).
- Hervé** (G.) Les alsaciens sous le rapport moral et intellectuel. (R. de l'Ec. d'Anthr. de Paris, 1905, xv, 281-301, 317-336, 8 fgs.) Treats of literature (three times, in the thirteenth century, in the Hohenstaufen era of Old Germanic epics, at the end of the Middle Ages in the beginnings of German prose and with the mystics, and in the time of the precursors of the Reformation,—Brandt, Marnier, Fischart, etc.,—Alsatian influence was dominant), public men and men of science, teachers, scholars, etc. (Hirn, Wurtz, Reuss, Friburger, Koch, and many historians, philologists, etc.), political ideas (in the Alsatian the "sense of monarchy" is lacking), psychic temperament, art and music (Goethe erred in ascribing to Teutonic genius all the monumental architecture of Alsace). The first great period of Alsatian literature lasted from the ninth century to beyond the Reformation.
- Heyne** (—) Ueber Körper und Gesichtsbildung der alten Germanen. (Corr.-Bl. d. D. Ges. f. Anthropol., München, 1905, xxxvi, 61-62.) Résumés data from Tacitus, Ausonius, etc., as to the bodily and facial characters of the ancient Teutons (men and women). Their white skin and rosy appearance were praised, but not their voices. Ausonius of Bordeaux fell in love with and married the Swabian slave Bissula. The names *Bruno* and *Bruna* seem to refer to complexion. Later, stature appears to have decreased somewhat, hair and skin color alone remaining of the old Teutonic ideals.
- Hoffmann** (W.) Heidentum, Katholizismus und Protestantismus in unserer rhein-hessischen Landbevölkerung. (Hess. Bl. f. Volksk., Leipzig, 1905, IV, 1-24.) Treats of Rhenish-Hessian folk-thought, heathen (of old beliefs and customs not a few fragments still remain: the so-called "Mai-Kuren," the straw-rope of St Sylvester's night, some folk-beliefs about the vine and its products, the fabled fountain-origin of infants, etc., beliefs about fire, New Year's, Easter and other practices, customs connected with birth,

baptism, courting and married life, death and funerals, spirits, the devil, charms, taboos, etc.), Catholic (remains of Catholic influence in Protestant Hesse are seen in current belief as to the relation of man to God and of man to man; as to the sacrament, sin, etc.; the position of the clergyman; the nomenclature of the calendar, etc.), and Protestant (anti-Catholic feeling regarding images, vestments, individualism, rationalism, etc., but not to the exclusion of pietism).

Jaeger (J.) *Die Tegernsee*. (Globus, Brnschw., 1905, LXXXVIII, 357-362.) Treats of geology of this Bavarian lake, human occupation (no traces of man of stone or metal ages yet discovered; nor did the Romans settle here; not till the sixth century, when the old Bajuvari came, was this region really inhabited), place-names, the cloister (founded in 756), which had a noted and useful career, etc.

Kahle (B.) *Die verschluckte Schlange*. (Ibid., 233-234.) Discusses the old Norse tale of the "snake" in the stomach of the beautiful princess Ingeborg and her cure.

Kárpáty (K.) *Votiv-Gaben aus Trans-Danubien*. (Anz. d. Ethnogr. Abt. d. Ung. Nat.-Mus., Budapest, 1905, III, 45-47, 2 fgs.) Notes on votive-gifts (animal forms, limbs, etc.) in wax from trans-Danubian Hungary. These objects are difficult to obtain, as they are melted into tapers by the religious authorities after they have been offered in procession or at the altar.

Kiessling (M.) *Das ethnische Problem des antiken Griechenland*. (Z. f. Ethn., Berlin, 1905, XXXVII, 1009-1024.) First part of a general discussion of ancient Greek ethnology—geographical and linguistic (folk-names and place-names) data. K. considers that when the Hellenic tribes entered Greece from Central Europe they found there an "autochthonous" people whose original home was in Asia Minor. From the mingling of these arose the *ethnos* of Hellenic culture.

Knoop (O.) *Pölnische Dämonen*. (Hess. Bl. f. Volksk., Lpzg., 1905, IV, 24-32.) Discusses various Polish "demons,"—*djabelek my jacy* ("wash devil"), a recent creation; "bis," *plonnik* (a neighbor in league with the devil), *kusy* ("the one with too-short clothes," a euphemism for "devil"), *boruta* and *rokita* (the former is "the Polish *national*

devil," who lives in a subterranean part of an old castle near Gnesen; the latter has more of a peasant character), with brief legends, etc.

Lehmann-Nitsche (R.) *Ueber die Adalbertsteine zu Strelno, Kujawien*. (Z. f. Ethn., Berlin, 1905, XXXVII, 946-951, 2 fgs.) Describes the "Adalbert stones" (erratic red granite blocks) in front of a church at Strelno, believed by the author to indicate a cult-place of the old heathen period. Certain reverence attaches to them on the part of the Polish Catholic population.

Lissauer (A.) *Eine Doppelaxt aus Kupfer von Ellierode, Kr. Northeim, Hannover*. (Ibid., 1007-1009, 2 fgs.) Describes a double-axe of pure copper (the nineteenth hitherto known) from Ellierode in Hanover, between Borsum and Pyrmont. The axe, which evidently could not be used as a tool, was probably a form of "copper bar," intended for insignia of honor, *ex-votos*, "money," or the like.

— *Zweiter Bericht über die Tätigkeit der von der Deutschen anthropologischen Gesellschaft gewählten Kommission für prähistorische Typenkarten*. (Ibid., 793-847, 37 fgs., map.) This second report of the committee on maps of prehistoric types treats of the different varieties of special axes (stop-ridged and flanged, West European; northern; north German; Bohemian), listing places where they have been found. The West European and northern types belong to the older bronze age, the north German to the epoch from the middle of the second period of Montelius far into the third period of Montelius, the Bohemian to the epoch from the second to the third period of Montelius.

Lovett (E.) *The Whitby snake-ammonite myth*. (Folk-Lore, Lond., 1905, XVI, 333-334, 1 pl.) Notes on the snake-headed ammonites once figuring on town arms of Whitby—the legend was that there were snakes turned into stone by St Hilda (Scott's *Marmion*, ii. 13).

MacLagan (R. C.) *Additions to "The Games of Argyleshire"*. (Folk-Lore, Lond., 1905, XVI, 340-349, 4 fgs.) Treats of hopping games, imitative games, incorrect speaking, knife games, leap-frog, marbles (one game is "American tag"), mental agility.

Madarassy (L.) *Das Putri- (Hütten-) Viertel*. (Anz. d. Ethnogr. Abt. d. Ung. Nat.-Mus., Budapest, 1905, III, 53-57,

- 3 figs.) Describes briefly the *putri* or "hut" quarter, or gypsy section (pariah class) of Hungarian towns, etc.
- Mahoudeau** (P. G.) Découverte d'une sépulture néolithique à Martigny près Vendôme, Loir-et-Cher. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 420-421.) Brief account of the discovery, reported by M. G. Renault, of a neolithic burial-place at Martigny near Vendôme. Through carelessness of the farmer's employés in their search for treasure, at least 20 human skeletons were destroyed. The "furniture" of the grave consisted of a single fine lance-point of flint.
- Manouvrier** (L.) Crânes de l'époque Mérovingienne. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., vi, 361-362.) Notes on 5 skulls (two of the sixth century from the Merovingian cemetery of Cléry; three from the cemetery of Maurepas, one of the eighth, the others of the eleventh or twelfth century) presented to the Society by M. C. Burlanger of Péronne. No measurements. Ethnic types are not very marked in these skulls. One, however, has strong individual characters, prognathism, etc.
- Mehlis** (C.) Neolithische Näpfchensteine. (Globus, Brnschw., 1905, LXXXVIII, 184, 2 figs.) Describes pitted stones from Wallböhrl and notes various theories as to their use: amulets and pectoralia; for making holes in skins, etc.; nut-breakers (sambaquis of Brazil); primitive palettes for colors; for shaping clay pearls.
- Mielke** (R.) Ein tönerner prähistorischer Fusz. (Ibid., 354, 1 fig.) Brief note on a prehistoric clay foot from Uckermark. The markings indicate that in the middle of the bronze age, at least, sandals were in use.
- von Miske** (K. Frh.) Mitteilungen über Velem-St. Veit. (Mitt. d. Anthr. Ges. in Wien, 1905, xxxv, 270-277, 13 figs.) Describes briefly prehistoric finds (bronze ornaments, implements, etc.; pottery) from the foot of Mt Velem St Veit and forged iron from fibulae of the Glasinac type. The use of the clay pyramids is not clear although they seem to be connected in some way with the hearth.
- de Mortillet** (A.) La trouvaille morgienne de Glomel, Côtes-du-Nord. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 337-343, 12 figs.) Describes 13 bronze objects (an axe and 12 dagger-blades), now in the Museum of St Omer, found in 1840-1845 (in connection with the making of the Nantes-Brest canal, etc.) at Glomel, in the department of the Côtes-du-Nord, Brittany. No arrow-points were found with them. De M. considers it a votive deposit and not the "cache" of a manufacturer or a trader.
- Murko** (M.) Zur Geschichte des volkstümlichen Hauses bei den Südslawen. (Mitt. d. Anthr. Ges. in Wien, 1905, xxxv, 308-330, 8 figs.) This first part résûmés briefly the Slavonic literature of the subject, discusses Meringer's works on the Bosno-Herzegovinian house, the "High German" house in the adjacent countries, etc.
- Näcke** (P.) Syphilis und Dementia paralytica in Bosnien. (Neurol. Cbl., Leipzig, 1906, xxv, 157-164.) Dr N. finds that while syphilis in Bosnia (also Herzegovina and probably Dalmatia) is extraordinarily common, brain-softening and tabes dorsalis are very rare.
- Oesten** (E.) Bericht über den Fortgang der Arbeiten zur Rethra-Forschung. (Z. f. Ethn., Berlin, 1905, XXXVII, 981-990, 7 figs.) Résûmés the results of the excavations, etc., in November, 1904, and January, 1905, at 10 different spots in Prillwitz. Remains of a bridge, and at the end of it, of a large building, not the Rethra temple, but the approach to it, were discovered. Other relics of the ancient Redarii were also found.
- Osterheide** (A.) Zwei Kleinigkeiten zum "Martinsfest." (Hess. Bl. f. Volksk., Lpzg., 1905, iv, 33-38.) According to O., the St Martin's day customs still bear evidence of "a contest of summer and winter." Text (two versions) and music of the "Martin song," as it is still given by children in Moers a. Rh.
- Pasquale** (M.) Lo sviluppo fisico nei ragazzi delle scuole della Città e Provincia di Roma. (Int. A. f. Schulhyg., Lpzg., 1906, II, 270-297, 28 tables, 6 curves.) Gives results of investigation (stature, weight, chest-girth, strength of hand) of 2005 boys and 1530 girls, from the elementary schools of the city and province of Rome, between the ages of 6 and 15 years. Up to 10 years the boys surpass the girls in height, but from 10 to 15 the latter exceed the former, the maximum difference occurring between 12 and 13. The chest girth follows stature but with less marked differences. In strength of hand the girls are at all ages inferior to the boys—the left hand is inferior in both sexes. In height the boys of the city of Rome surpass those of

the other communes; weight shows the same run. Food, housing, work, clothing, education, and social condition thereby represented, influence physical condition and development. As remedies for unfavorable conditions Dr P. enumerates physical education, manual labor, vacation-colonies, preventive medicine, school-refection, clothing, etc. The public school ought to be a corrective and healthful institution.

Pittard (E.) Influence de la taille sur l'indice céphalique dans un groupe ethnique relativement pur. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., VI, 279-286.) Discusses the influence of stature upon cephalic index in the case of a relatively pure group of 1205 (m. 775, w. 430) adult gypsies from the Balkan peninsula. Dr P. concludes that stature has a manifest influence on the cephalic index, dolichocephaly increasing with rise of stature. In a dolichocephalic group the tallest are the most dolichocephalic; in a brachycephalic group the tallest are on the average the least brachycephalic. According to P., the much discussed attraction of the city for those of high stature and more marked dolichocephaly ("a so-called social selection") "is explainable simply by the simultaneous occurrence of these two characters: greater development of stature due to conditions of urban life and the lowering of the cephalic index connected with such augmentation of stature."

— La couleur des yeux et des cheveux et la forme du nez chez 1270 Tsiganes des deux sexes de la péninsule des Balkans. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 367-372.) Gives results of observations of color of hair and eyes and form of nose of 840 male and 430 female gypsies of the Balkan peninsula, — the earlier data of Glück are also considered. Black hair is most common in both sexes (blonds are only 0.6 per cent for men and 1 per cent for women); curly hair occurs in only 7 per cent of the men. Dark eyes occur in 87 per cent of both sexes. Straight noses occur in 57.5 per cent of the men and 70.7 per cent of the women. The aquiline nose proper is very rare.

Regália (E.) Grotta Romanelli (Castro, Terra d'Otranto). Seconda Nota. Due Risposte ad una Critica. (A. p. l'Antrop., Firenze, 1905, XXXV, 113-172, 2 fgs.) Discusses the various deposits of the Romanelli cave and the

remains found therein. Dr R. concludes that "nothing of genuine neolithic character has been produced from this cave." The absence of pottery and of the remains of domestic animals is proof positive. An "osteological note" (147-155) by Dr R. treats of the equid remains from this cave, and a "reply" (157-169) by P. E. Stasi to a critique by Professor Pigorini of his article on the Romanelli finds. The figure incised upon the right wall of the cave represents, according to Dr R., some species of *Asinus*, used for food by these prehistoric people. Another set of incised grooves on the same wall is thought to be a "fence" for large game.

Rietz (—) Körperentwicklung und geistige Begabung. (Z. f. Schilgshdtsph., Hamburg, 1906, XIX, 65-98, 8 fgs.) Gives, with tables and curves, the results of data concerning some 20,400 boys (aged 9-20) from 19 Gymnasias, 8 Realgymnasias, 3 Oberrealschulen and 12 Realschulen in the city of Berlin, — height, weight, and yearly growth are considered. Physically the children of the poor lag behind those of the well-to-do. The author considers classes and age better criteria than the estimates of teachers. The physically fitter are generally the intellectually fitter.

Roeder (A.) Parsifal. (Open Ct., Chicago, 1905, XIX, 26-27.) Author argues that the people, deprived of the real Christ by the theologians, built themselves in Parsifal "a compensatory Christ."

Rothmann (—) Vorläufiger Bericht über die Ausgrabungen auf Flintheim, aus den Mitteln der Rudolf Virchow-Stiftung 1904. (Z. f. Ethn., Berlin, 1905, XXXVII, 996-998.) Brief account of investigation of the "culture layer" of the later neolithic settlement at "Flintheim," and notes of finds (5000 pottery fragments, 300 of which are ornamented; 6500 flint chips, 300 scrapers, 50 knives, 15 axes; fragments of grinding and rubbing stones, etc.; 5 horn axes and many worked pieces of bone, etc.; 2700 animal bones).

Schenck (A.) Les palafittes de Cudrefin. Vaud. Lac de Neuchâtel. Âge de bronze. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 262-268, 15 fgs.) Gives account of discovery of a new lacustrine "station" between Cudrefin and Port-Alban on the Vaudois shore of Lake Neuchâtel and the remains there found

- (wooden piles, bronze axes, and knives, ornaments, particularly pins; hooks, buckles, bracelet, spiral, etc.). The "station" belongs to the flourishing period of the bronze age (Desor) or the Larnaudian epoch (Mortillet), contemporary with the lake-dwellings of Morges and Corcelettes.
- Étude d'ossements et crânes humains provenant de palafittes de l'âge de la pierre polie et de l'âge du bronze. Lac de Neuchâtel. Lac Léman. (Ibid., 389-407.) Treats of human bones and skulls from neolithic and bronze age lake-dwellings at Grandson (skeleton), concise (two skulls, etc.), Corcelettes (two skulls, etc.), and Anthy (skeleton), with detailed descriptions, measurements, etc. The increasing number of skulls now known from these lake-dwellings indicate, according to Dr S., the brachycephaly of the early neolithic lacustrine population; at the middle of the period (Robenhaus epoch) mesocephalic and dolichocephalic skulls appear, then in the period of transition from stone to bronze (Morgian epoch) the dolichocephals predominate; towards the end of the bronze age the characteristic Celtic brachycephals are in the majority, and they still form a very strong proportion of the population in Switzerland.
- Schicker** (J.) Bericht über römische Skelettfunde in der Umgebung von Laureacum. (Stzgb. d. Anthr. Ges. in Wien, 1905, xxxv, 54-55.) Brief account of several skeletons and five skulls (three dolichocephalic, two mesocephalic) found in Roman graves in the neighborhood of ancient Laureacum.
- Schnippel** (E.) Ueber Reste einer steinzeitlichen Ansiedlung im ostpreussischen Oberlande. (Z. f. Ethn., Berlin, 1905, xxxvii, 952-969, 20 fgs.) Describes finds (flints and pottery-fragments, — numbering over 1600) at a "station" of the later stone age near Osterode, East Prussia. The ornamentation of the pottery is interesting, some shards containing finger-marks of children.
- Schütte** (H.) Sind die Kreisgruben unserer Watten Gräber oder Brunnen? (Corr.-Bl. d. D. Ges. f. Anthropol., München, 1905, xxxvi, 50-55, 59-61.) Adduces arguments to show that the circular pits of the Oldenburg sand-banks are wells and cisterns, not graves, — those of the North Sea sand-banks were discovered by Fr. von Alten in 1873. The pottery found in them is such as might easily find its way into wells. This article appeared also in the *Jahrb. f. Ges. d. Hsogt. Oldenburg*, 1905, xiii, 149-169.
- Schweinfurth** (G.) Pseudoeolithen im nordischen Geschiebemergel. (Z. f. Ethn., Berlin, 1905, xxxvii, 912-914.) Briefly describes some "pseudoeoliths" from the "Kreisberg" near Neu-Brandenburg and from Neu-Strelitz, and suggests the investigation of the marl of the northern gravel-pits for interglacial flints comparable to the prehistoric Egyptian. The results hitherto have been negative.
- Sebestyén** (K.) Das Székler Haus des Háromszékler "Szentföld." (Anz. d. Ethn. Abt. d. Ung. Nat.-Mus., Budapest, 1905, iii, 1-7, 10 fgs.) Describes the house; its construction, divisions, etc., among the Székler of the so-called "Szentföld," or "Holy Land" of the Háromszék district of Hungary, a part of the country still without railroads and least affected by modern civilization. The Székler house is bi-partite, has smoke-hole (no chimney), gable-ornaments, a fence (often of stone); stone posts have driven out oaken gates.
- Sebök** (S.) Die wandernde Stina im Hortobágyer Gebirge. (Ibid., 51-53, 3 fgs.) Describes the transportable hut (*stina*) of the Wallachs of the Hortobágy mountains. The *stina* is not used for sleeping in, but for cooking, milking, making cheese, etc.
- Szabó** (I.) Weihnachten der Deváer Csángó-Székler. (Ibid., 13-25, 2 fgs.) Describes, with part of text and music, the "Soldier-play" and the "Bethlehem Play" recited and sung at Christmas time by the Csángó-Székler of Devá. The "Bethlehem players" are 12 in number.
- Thomas** (T. H.) A fisher-story and other notes from South Wales. (Folk-Lore, Lond., 1905, xvi, 337-340.) English text of a transformation-story (fish-girl lover) from Carmarthen. See also the same author's *Some Folk-Lore of South Wales* (Cardiff, 1904).
- Variot** (—) et **Chaumet** (—) Tables de croissance dressées en 1905 d'après les mensurations de 4400 enfants Parisiens de 1 à 15 ans. (C. R. Acad. d. Sci., Paris, 1906, cxlii, 299-301.) Gives curve and tables of stature and weight (also compares with results of Bowditch, Quételet, etc.). Foreigners, sick and abnormal individuals are not included. The annual increment of height is greatest for

boys at 14-15 years, girls at 2-3 years; least at 11-12 and 15-16 respectively. Increment of weight greatest for boys at 14-15, girls, 14-15; least at 3-4 for both sexes. The average stature of Parisian boys at 15-16 years is greater than that of Boston boys; of girls, less.

Vilibald (S.) Wogulisch-ostjakische ornamentierte Rindengefäße. (Anz. d. Ethnogr. Abt. d. Ung. Nat. Mus. 1905, III, 25-44, 4 pl., 9 fgs.) Treats of the interesting ornamented bark vessels of the Wogul-Ostyaks, of which a collection of 50 pieces (12 dishes of birch-bark, 4 covers for fish-dishes, 3 "tubs," a scoop, 3 cradles, 9 cylindrical boxes of pine or birch-bark, 11 round plates, etc.), partly obtained by Dr K. Pápai and Dr J. Jankó from various parts of the Wogul and Ostyak country. The native names of the ornamental motifs are given at pp. 41-43. Among these are: sun, fish lying, worm, duck-wing, pike-tooth, horse-tooth, dog's paw, snake, pine cone, etc. The ornamentation of the Woguls and Ostyaks is "an original 'national' characteristic of these peoples, highly developed among them;" comparison with the decorative styles of the Magyars gives only negative results.

Virchow (H.) Bericht über die Oertlichkeit des "Flintholm" auf Grund eines am 11 August, 1905, unter Führung des Dr Rothmann ausgeführten Besuches. (Z. f. Ethn., Berlin, 1905, XXXVII, 993-996.) Describes various layers (particularly the "Kulturschicht") and contents, — wood, remains of dwellings, stone, bone and horn implements, remains of food-substances, fragments of pottery, etc., — at a neolithic "station" on the north end of the island of Alsen. The passage-graves in the neighborhood have been destroyed by the present owners.

Volkov (T.) Rapport sur les voyages en Galicie orientale et en Bukovine en 1903 et 1904. (Bull. Soc. d'Anthr. de Paris, 1905, 5^e s., VI, 289-294.) Brief account of author's investigations in eastern Galicia and Bukovina in 1903-1904. Gives anthropometric data (stature, cephalic index, color of hair and eyes) concerning 112 Huzuls and 126 Börkis, notes on houses, costume, etc. As compared with the Huzuls the Börkis are less purely mountaineers, less conservative in dress, have fewer and poorer ornaments. They belong together, however, in one group, no fundamental differences really exist-

ing. The Huzuls of Bukovina and Galicia are anthropologically one. The Galician and Bukovinan Huzuls are tallest (av. 1691 mm.) and somewhat more brachycephalic. The Börkis of Tukla seem an intermediate group between the Huzuls and the Börkis.

Waldstein (C.) What Herculeaneum offers to archeology. (Harper's Mo., N. Y., 1905, CX, 733-738, 9 fgs.) Brief notes on art objects (bronzes, marble busts, mural paintings on marble, portrait statues, manuscripts, etc.), recovered from Herculeaneum. The Greek finds in the villas exemplify the glorious age of art. Piso's villa has been particularly fruitful.

Weigers (—) Ueber die paläolithischen Funde aus dem Interglazial von Hundisburg. (Z. f. Ethn. Berlin, 1905, XXXVII, 915-920, 2 fgs.) Discusses the finds at Hundisburg and the opinions of Dr Favreau concerning them. W. finds no proof that diluvial man lived in Hundisburg before the last interglacial time.

Wherry (Albinia) The dancing-tower processions of Italy. (Folk-Lore, Lond., 1905, XVI, 243-259, 5 pl.) Treats of the "Rua" of Vicenza; the Macchina Triomphale or Cero, of Sta Rosa at Viterbo; the "Gigli," or Lilies, of Nola; the festival of "La Vara" at Messina; the festival of Sta Rosalia at Palermo; the elevation of the Ceri at Gubbio. The Ceri, or "dancing towers," figuring in George Eliot's *Romola*, though now extinct in Florence, still survive in many other parts of Italy. To Mrs W.'s paper Prof. N. W. Thomas adds a "Note."

Wilke (Dr) Beziehungen der west- und mitteleutschen zur donauländischen Spiral-Mäanderkeramik. (Mitt. d. Anthr. Ges. in Wien, 1905, XXXV, 250-269, 56 fgs.) Discusses the relations of the west and central German to the Danubian spiral-meander pottery. The four groups of ornamental motives (unilinear continuing volutes, double volutes, serpent-lines, doubling or multiplication of the simple two or more circled volute-line) are briefly treated. According to W. the spiral-meander pottery is distinct in origin and development from the so-called "Winkelbandkeramik." The ornamentation of the latter is synthetic in its evolution and has, as H. Schmidt pointed out, been imitated from bodily ornament; the former was analytically discovered by way of com-

plicated groups of figures. The primitive home of the spiral-meander pottery was in the lower Danubian region. Their distribution in the west was probably due to trade-relations.

Wilser (L.) Neues über den Urmenschen von Krapina. (Globus, Brnschw., 1905, LXXXVIII, 283-284.) Résumé and critique of Gorjanovic-Kramberger's recent monograph on the primitive man of Krapina. G.-K. assumes the existence of but one old-diluvial race. W. denominates the oldest known human race of Europe *Homo primigenius*.

Zaborowski (S.) Derniers travaux sur l'anthropologie des Finlandais. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 415-419.) Résumé and critique of Westermund's *Studier i Finlands anthropologie* (Helsingfors, 1900-1904). The original dolichocephaly of the Finns has been influenced by a brachycephaly now dominant due to Lapp and Slav admixture (in the parts contiguous to present Slav areas the brachycephaly reaches 80 per cent). Finland proper has been occupied by the Finns comparatively recently.

— Pénétration des Slaves et transformation céphalique en Bohême et sur la Vistule. (Ibid., 1-17.) Discusses the migration of the Slavs (during our era brachycephaly has been the sign of the appearance and expansion of Slavonic speech; in the "centers of refuge," forests and marshes, there are still to be found indigenous dolichocephals, — Lithuanians and others) and the changes in cephalic indices in Bohemia and the region of the Vistula. Upon the Slav brachycephalic peoples have imposed themselves other brachycephals (Mongolian). Z. discusses also inhumation and incineration and their ethnic relations. The ancient Aryans inhumed their dead; the incinerating peoples were brachycephalic brunets of Asiatic origin, the custom of burning the dead being propagated simultaneously with brachycephaly.

AFRICA

Adams (C. F.) Reflex light from Africa. (Century Mag., N. Y., LXXXII, 1905, 101-111.) Gives author's impressions of Khartoum and "Black Africa," with views on the African in America, San Domingo and Egypt (a suggestive parallel), the Philippines, the "veiled protectorate," etc. Mr Adams, who takes

Omdurman to mark "in commerce, in letters and in art, in science and in architecture, the highest point of development yet reached by any African race," says of the Soudanese in general, "in them not the slightest inherent power of development has as yet come to the surface," — they have "neither domesticated the elephant nor invented pottery." The author is very naive in some of his arguments.

African topics reviewed. (J. Afric. Soc., Lond., 1905-6, v, 87-95, 197-211.) Contains notes on direct taxation, the Aswa region of the Latuka country, the women of the Bahima (cows are the center of life with these people), a list of Kabi kings, the custom of *hlonipa* among the Lokele of Stanley Falls; procedure in native courts on the Gold Coast, swearing of a chief's oath, palm-leaf notice of trespass-case; Boers and game-destruction, poisonous snakes, big game of Uganda, *hlonipa* in Bantu (list of 30 Kele words and their *hlonipa* equivalents).

Atlantischen (Die) Küstenstädte Marokkos. (Globus, Brnschw., 1905, LXXXVIII, 201-205, 261-266, 12 fgs.) The illustrations, taken from Montel's *Voyage au Maroc*, are of ethnographic interest.

Bailey (W. F.) The native and the white in South Africa. (Ninet. Cent., Lond., 1906, 314-330.) Discusses the problem and the various solutions proposed, — "the problem is the nearest approach to an insoluble one that can be conceived." The question in the future is "Is South Africa fitted by nature and circumstances to be a white man's land?" Meantime the native is increasing more rapidly than the white; he is beginning to think, read and write for himself. Taught that he is equal with the white man in the sight of God, he will not long be content to remain so much his inferior in the sight of man.

Baillaud (E.) The problem of agricultural development in West Africa. (J. Afric. Soc., Lond., 1905-6, v, 117-129.) Author holds that "for the present the problem of the exploitation of West Africa must be effected in a different way from that to be pursued in semi-equatorial regions, such as those of the Sudan." In West Africa the employment of manure is difficult (by reason of the heavy rains) and the use of the plough often impossible (the roots

are necessary to hold together what little soil exists).

Booth (J.) Die Nachkommen der Salukaffern (Wangoni) in Deutsch-Ostafrika. (Globus, Brunschwig, 1905, LXXXVIII, 197-201, 222-226.) Treats of the history—two migrations, 1825-1860—race mixture, tribes, population, language, etc., of the Wangoni of German East Africa. The genealogical trees of the Gama and Tawaete stocks are given, also a comparative vocabulary of 55 words in Kissutu, Kingoni, Kidendauli, Kinindi and Kinyassa, also of the Kissutu slave-jargon. The Kaffir descendants and the slave element number altogether some 500-700. B. spent 3½ years in the country.

Capitan (L.) et **D'Aguel** (A.) Rapports de l'Égypte et de la Gaule à l'époque néolithique. (R. de l'Éc. d'Anthr. de Paris, 1905, xv, 302-316, 12 fgs.) Describes a series of 24 flints from the rocky islet of Rion on the coast of Provence near Marseilles, which resemble to identity a corresponding series from Fayum in Egypt (such specimens being of a kind extremely rare outside of Egypt). The authors believe in the contemporaneity of the neolithic Egyptian population and that of the kitchen-middens and sands of the islet of Rion; also that the Egyptians came to Rion about 5000 B. C., leaving their flints as evidence of their temporary sojourn, — some of the refuse heaps antedate this period. After the Egyptians came the Ligurians (while Rion was still a peninsula) as shown by the presence of their peculiar pottery, then the Greeks, the Romans, leaving also ceramic evidence.

Cobham (H.) The Idem secret society. (J. Afric. Soc., Lond., 1905-6, v, 40-42.) The Nigerian *idem* society is "a body of men formed for the purpose of governing the clan, household, or family to which they belong." Each *idem* has a special significant name, a distinguishing badge. The head of the house is always the president, and must give an annual feast to the members. The evil character of the *idem* is largely exaggerated.

Cotton (J. C.) Calabar stories. (Ibid., 191-196.) Gives English texts of 10 brief stories (cosmogonic, observation-myths, animal-tales), telling why monkeys inhabit trees, where the stars came from, why some monkeys have white faces, why the pig's nose is de-

formed, where the moon came from, origin of the white race, why men die and are buried, why the shell of the tortoise is patchy, why the lizard lives in houses and why the cock crows, why the snake and the rat are enemies.

Decorse (J.) L'habitation et le village au Congo et au Chari. (L'Anthropologie, Paris, 1905, xvi, 639-656, 13 fgs.) Treats of the house (Congo type, Banda type; Niellim type, Kaba type, Dendjé type; Barma type, Sao type, Tchad type, — the first group belongs to the rainy region, the third to the arid, while the second is intermediate) and the village (the natural grouping was by families, — a village begins as "some one's place"; race little influences the disposition of villages, rather the nature of the country; each has his own house; the more populous the village, the rarer the huts without enclosures; in fetishism isolation and indecision are characteristic; Islam has introduced some modifications of a social nature; the Horo have "transportable villages") among the natives of the Congo and the Chari.

DeMorgan (J.) The temple of Susinak. (Harper's Mo., N. Y., 1905, cx, 875-884, 16 fgs.) Describes the ruins of the temple of Susinak (in the center of the tell of Susa) and the objects therein discovered (diorite stele of Hammurabi, 2000 B. C.; stele of Nuram Sin, ca. 3750 B. C.; obelisk of Munichtusu; title-deeds or kudurrus; ex-votos, offerings, etc.)

Dennett (R. E.) The Bavili alphabet restored. (J. Afric. Soc., Lond., 1905-6, v, 48-58.) Author seeks to show that "in the death shroud used in the burial of the king of Loango (French Congo) there is the living evidence of a formula of the philosophy that lies at the back of the Bavili's mind." This formula is filled in with the numbers 1-26. This article is a linguistic-metaphysic *tour de force*.

Duchemin (—) Les mégalithes de la Gambie. (L'Anthropologie, Paris, 1905, xvi, 633-638, 8 fgs.) Describes two types of megalithic tombs (one with circle of monoliths, without a central tumulus; the other with central tumulus without monolithic inclosure; both usually fronted by a line of monoliths facing eastward); investigated by Capt. D. in 1904. They are situated at N'Gayen, Diama Passy, Keur Sam,

- Kountonata, Khodiam, and Dialato. Human remains and pottery (the latter not very different from that of West African peoples to-day) were discovered. The skulls are Nigritic.
- Flinders-Petrie** (W. F.) The Egyptians in Sinai. An account of recent discoveries. (Harper's Mo., N. Y., 1906, CXII, 440-447, 9 fgs.) Gives account of the excavations at the site of the temple of Saralit el Khadem, Sinai and the remains there discovered. The Egyptian records in this region date back to 4500 B. C. (rock sculpture of King Semerkhet of First Dynasty), and the Egyptians mined turquoise here 4000-1100 B. C. The mining-record tablet dates from 2500 B. C. Here too is to be found "the oldest example of the system of Semitic worship."
- France** (H.) Customs of the Awuna tribes. (J. Afric. Soc. Lond., 1905-6, v, 38-40.) Describes briefly a fetish-dance of worshippers of Hebieso (god of thunder) at Wé, a village on the Gold Coast. The dancers were women.
- Gentz** (—) Die englische Eingeborenenpolitik in Südafrika. (Globus, Brnschw., 1905, LXXXVIII, 266-267.) The English policy is "to gain time," and to keep for the present the good-will of the natives. The race-struggle is by no means ended and South Africa may yet hear the cry "the dark continent for the blacks."
- Greene** (H. C.) A great discovery in Egypt. (Century Mag., N. Y., 1905, LXXXI, 60-76, 19 fgs.) Gives account of the discovery in February, 1905, in the Valley of the Kings, of the tomb of Ioua and Tioua, father and mother of Queen Tii of the eighteenth dynasty (famous for having changed the national religion), the mummies, rich furniture (the offerings to the dead were the real things themselves, not mere models). A ventilated provision trunk of reeds has quite a modern aspect.
- Grenfell** (Alice) Egyptian mythology and the Bible. (Monist, Chicago, 1906, XVI, 169-200, 22 fgs.) Cites Old Testament (voice-creation of light, etc., precedence of night over day, maker-formula of address to the Almighty, processional boat and ark, oneness of God, washing with milk, "the beginning of wisdom," the just man) and New Testament parallels (Alpha and Omega, the golden girdle, the wool-white hair, the second death, the sea of glass, the four beasts full of eyes, the four angels at the four corners of the earth, tears wiped away, scorpion tails, lion-headed horses with serpent-headed tails, many crowns, chaining the dragon, the lake of fire, the wall of jasper). These are "a few traces of Egyptian influence" in the Bible.
- Hamy** (E. T.) Note sur ungisement de labradorites taillées découvert par le Dr Maclaud au confluent de la Féfiné et du Rio Grande, Guinée Portugaise. (L'Anthropologie, Paris, 1905, XVI, 625-628, 2 fgs.) Brief account of the discovery in February, 1903, at the junction of the Féfiné and the Rio Grande in Portuguese Guinea of some 100 flints (worked labradorites), indicating a prehistoric "station" (the negroes of the Rio Grande region have no legend about these stones, do not know their former use, and assign no peculiar property to them).
- Huguet** (J.) Recherches sur les habitants du Mzab. (R. de l'Éc. d'Anthrop. de Paris, 1905, xv, 18-31.) Treats of population (census of 1896-7 showed 25,300), physical characters and ethnic elements (negro slaves from all parts of Africa; Arabs; Jews; Mzabites proper; *métis*, Negro-Mzabites), anthropometric data of 10 Mzabite, 10 Jewish, 10 Arab, 10 negro children, 4 *métis* (Mzabite-Negro) and one Mzabite-Jew *métis*. The Mzabite is physically superior to the Kabyle but inferior to the Tuareg; he is more intelligent than the Arab.
- Superstition, magie et sorcellerie en Afrique. (Ibid., 349-360.) Treats of fetishism, sorcerers (in Africa "the first king was a successful sorcerer"), etc. Based on Chanel, Kingsley, Fargeas, Schweinfurth, Burton, Guiral, Nebout, etc. H. believes in religious evolution from fetishism (animism, naturism), through polytheism to monotheism. The most powerful elements of African society are the sorcerers, "magicians," or "medicine-men." European civilization has not weakened their power as much as is generally believed.
- Johnston** (A.) The colonization of British East Africa. (J. Afric. Soc. Lond., 1905-6, v, 28-37.) Discusses ethnic and political conditions. Advocates a "British first" policy for "this healthy territory." Also "administration for a time in water-tight compartments."
- Junod** (H. A.) The native language and native education. (Ibid., 1-14.) Argues in favor of the method of "vernacular at the base and English at the

top." The native child "is a little Bantu, having learned in his home a nice, expressive, though not cultured, language, in which the mind of his forefathers has been incorporated." This he ought to study first, then English.

Königin (Die) Njawingi von Mpororo. (Globus, Brnschw., 1905, LXXXVIII, 337.) Gives, after v. Stuemer in the *Kolonialblatt* for Oct. 1, 1905, an account of a visit to Njawingi, the female ruler of Mpororo, or rather the priestess Kiakutuna, now the tool of the stronger party in the state. A real Njawingi probably once existed, and a popular belief in her divinity and immortality has arisen.

La Chard (L. W.) The arrow-poisons of Northern Nigeria. (J. Afric. Soc., Lond., 1905-6, v, 22-27.) Gives results of examination of 7 vegetable and 3 animal (obtained from decaying tissue) poisons. The Hausa names of 18 kinds of plants used in making poison are given. For man, the natives believe that vegetable poison alone is insufficient, so the arrows are coated with the animal fluid after the vegetable has dried.

Laloy (L.) Le Quaternaire d'Égypte d'après M. Blanckenhorn. (L'Anthropologie, Paris, 1905, XVI, 664-672.) Résumé and critique of article by Blanckenhorn in the *Zeitschr. d. deutschen geolog. Ges.* (Berlin) for 1901.

MacAlpine (A. G.) Tonga religious beliefs and customs. (J. Afric. Soc., Lond., 1905-6, v, 187-190.) Describes death and beliefs concerning it (breath = soul; departed spirit; interment) among the Tonga of the southwest corner of Bandawe. Reprinted from *The Aurora* of February, 1905.

Maguire (P.) West African dyeing. (Ibid., 151-153.) Describes briefly indigo-dyeing. Reprinted from *The Manchester Guardian*.

Mélange (Le) des races au Congo français. (R. de l'Éc. d'Anthr. de Paris, 1905, XV, 421-422.) Observations of M. F. Challaye, reproduced from *Le Temps* for May 27, 1905. Calls attention to the mixture of races in process at the new Brazzaville, in the French Congo.

Melusine (A) Story from the Gold Coast. (J. Afric. Soc., Lond., 1905-6, v, 104-107.) Gives origin myth of the Saur Nannam family of Chama on the Gold Coast, said to be descended from

the Bointo. The wife disappeared when called, in abuse, a fish.

Merrick (G.) Languages in Northern Nigeria. (Ibid., 43-47.) Author estimates that in the ranks of the Northern Nigerian Regiment some 60 or 70 languages are spoken. A list of tribes is given. This region of Africa is prolific in varieties of speech.

Nevinson (H. W.) The slave-trade of to-day. (Harper's Mo., N. Y., 1905, CXI, 668-676, 849-858; CXII, 114-122, 237-246, 327-337, 30 fgs.) Sections 3-7, treating of Portuguese slavery and contract-labor, "the hungry country" (Cuanza to Mashiko), down to the coast (to Benguela and the sea), the slaves at sea, the islands of doom (San Thomé and Principe in the Gulf of Guinea). The complete account of Mr N.'s investigations has been published with the title *A Modern Slavery* (N. Y., 1906).

Papillault (G.) Crânes d'Abydos. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., VI, 260-269.) Describes with details of measurement the material (7 male, 4 female skulls) brought by M. Amélineau from Abydos, and compares it with Broca's Sakkarah and Chantre's El Khozan crania. The cephalic indices for the three series average, respectively, for men and women 75, 78.8; 76.2, 78.1; 73, 74.7. The so-called "Osiris skull" is probably female. Three types of skull occur, representing ethnic varieties.

Pirie (G.) Northeastern Rhodesia, its people and products. Part I. (J. Afric. Soc., Lond., 1905-6, v, 130-147.) Historical notes, etc., on the Awemba, their chiefs, wars, etc., 1730-1896.

Ramsay (Capt.) Bamum. (Globus, Brnschw., 1905, 272-273, 2 fgs.) Brief account of Chief Joia of Bamum in southwestern Adamaua, and his people. A wooden seat, testifying to the art of the Bamum tribes, is now in the Berlin Ethnological Museum.

Roux (—) Note sur un cas d'inversion sexuelle chez une Comorienne. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., VI, 218-219.) Gives account of a woman of the island of Maintirano, on the west coast of Madagascar, who was a *sarindahy* ("having the appearance of a man"), whose sexually inverse practices lasted beyond her sixtieth year,—the wooden phallus used by her was obtained by the author. In Madagascar there exists a sect of male sexual perverts called Sekatra,

—the individual members are termed *sarimbavy* ("having the appearance of women").

Schmidt (W.) *Lieder und Gesänge der Ewhe-Neger, Gê-Dialekt.* (Anthropos, Salzburg, 1905, 1, 65-81.) First part of collection (native text, translation, music) of texts of songs in the Gê dialect of the Ewhe negroes of West Africa, — three songs of Anecho young women are given. The composers of songs, *hakpato*, often have their singers or declaimers, *hasino*. The professional singers sing loud and distinctly in contrast to the ordinary singer. Both *hakpato* and *hasino* are usually members of fetish societies and satirize women and their affairs in particular.

Smith (M. L.) Arab music. (J. Afric. Soc., Lond., 1905-6, v, 148-150.) Calls attention to the efforts made by the governor-general of Algeria to preserve Arab music. The *Toucheat Zidane* (the instrumental prelude at the beginning of the *Nuba* or opera of the *Zidane* mode) has lately been performed by military bands in Algiers. Miss S.'s article is translated from the French of M. Jules Rouanel.

Spire (F.) Rain-making in equatorial Africa. (Ibid., 15-21, 3 fgs.) Brief account of "rain-making," as exemplified for the author by Ledju, the hereditary chief rain-maker of the Bari tribe, and his assistants in May, 1904. Previous to British occupation unsuccessful "rain-makers" were killed or severely punished. The wet season is the rain-making time. At other seasons the natives are incredulous.

van Thiel. *Le Sorcier dans l'Afrique équatoriale.* (Anthropos, Salzburg, 1905, 1, 49-59.) Treats of the "sorcerer" as fortune-teller and diviner (augury by hen, poison, calabash and seeds, water, etc.), priest (sacrifices, rôle of serpent; the great initiation or *kubandwa*, — described in some detail; it lasts four days; vocabulary of the *luchwezi* or ritual language), and doctor.

Weissenborn (J.) Animal-worship in Africa. (J. Afric. Soc. Lond., 1905-6, v, 167-181.) First part of a translation of Dr W.'s article in the *Deutsche Geogr. Blätter*, vol. XXVIII. In extended form the same monograph appeared in the *Int. Arch. f. Ethnogr.* for 1904. About 60 animals are considered in the last, — in the present article the goat, sheep, ox and cattle (buffalo not revered except

among Zulus), serpent (in some detail), etc.

Werner (A.) Recent work in Bantu philology. (Ibid., 59-70.) Reviews W. H. Stapleton's *Comparative Handbook of Congo Languages* (Yakusu, 1903) and *Suggestions for a Grammar of Bangala* (1903) and R. Wolff's *Grammatik der Kinga-Sprache*. The Bangala is a *lingua franca* which is spreading rapidly all over that part of the Congo not influenced by the Arabs. This Bangala has lost the alliterative concord, its adjectives are indeclinable, its numerals invariable, it has given up the possessive adjective (*mynow* = *with me*), has an "ungrammatical" present tense, etc.

— Native affairs in Natal. (Ibid., 72-86.) Résumés data of the *Blue Book for Native Affairs* for 1904, dealing with Natal and Zululand. The evil influence of depraved Europeans, especially upon native women, the undermining of native custom and tradition by European influence (the contrast between the "Kraal girl" and the "Mission girl" is marked), the ravages of liquor, etc., are referred to. The remedy for "native lawlessness," is "to know the native."

— Notes on the Shambala and some allied languages of East Africa. (Ibid., 154-166, map.) Treats briefly of the phonetics ("ha-disease," tone), and grammar (*lu* and *bu* classes, diminutive, onomatopoeic elements) of Shambala, Bondi, Zígula, and Nguru.

ASIA

Von Brandt (M.) *Nach dem Kriege.* Japan in politischer und wirtschaftlicher Beziehung. (Globus, Brnschw., 1905, LXXXVIII, 213-216.) Author points out effects of the war upon Japanese character and institutions. In the recent disturbances in Tokio students were often the leader of mobs. There is danger for the "old men."

Buchner (M.) *Zum Buddhatypus.* (Ibid., 253-254.) Discusses two peculiarities of the canonical Buddha type, the piercing of the ear-lobes and the snail-like curly locks—the former derived from the thick ear-plugs once in use. The latter may be due to the difficulty primitive art finds in imitating the human hair,—one way in Oceania and Asia was to place a number of small snail-shells on the head. To substitute dough for this and then color

- it black was another step observed by the author in China.
- d'Enjoy (P.)** Pénalités chinoises. Peines et supplices. Sursis et revision. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., VI, 247-254.) General account of Chinese punishments, — they are both numerous and diverse, and are of two sorts, those inflicted as direct punishments for offenses committed and those accessory to the former in special cases. The former number eight: whip or rod; bastinado; detention with hard labor; transportation; exile; deportation with military servitude; pillory; death. The accessory punishments are bastinado and branding. In capital cases respite and revision are possible.
- Gil (S.)** Fábulas et refranes anamitas. (Anthropos, Salzburg, 1906, I, 82-90.) First part of a collection (native text with Spanish translation) of Annamese fables (the toad and the tiger; 19 proverbs) from the province of Nam-Dinh.
- Götz (W.)** Wilh. Filchner's Reise in Ost-Tibet. (Globus, Brnswgw., 1905, LXXXVIII, 149-154, 6 fgs.) Contains a few notes on the Tanguts.
- Guesdon (H.)** La littérature khmère et le Buddhisme. (Anthropos, Salzburg, 1906, I, 91-109, 6 fgs.) Lists, résumés, and comments upon the literature of the Khmers, or Cambodians (texts, authors, translators, copyists, general themes, etc.) and discusses the effects of Buddhism, — "if Brahmanism has created in Cambodia *chefs-d'œuvres* of architecture, Buddhism has killed its literature."
- Haberer (—)** Ueber die Menschenrassen des japanischen Reiches. (Z. f. Ethn., Berlin, 1905, XXXVII, 241-244.) Treats chiefly of the peoples of the island of Formosa, the Ilakka (Kwantung Chinese) of the west coast; the Hoklo (Fukien Chinese) of the west coast towns; the Malay population (seven groups, Atayal, Vonum, Tsou, Tsalises, Pauvan, Puyuma, Ami), — the Japanese term the Malays *Sebanshin* ("savages"). The independent Formosan tribes number some 115,000. The adjacent island of Kotosho or Botel Tobago is inhabited by a harmless, primitive people, ca. 3,000 souls. The Japanese themselves are a "Mongol-Malay mixture."
- Iyer (L. K. A. K.)** The Izhuvats of Cochin. (Ethnogr. Surv. of the Cochin State, Monogr. No. 10, Emakulam, 1905, 1-79, 5 pls.) Treats of tribal names, caste, titles, houses; marriage and sex-relations, puberty-rites, child-birth, and ceremonies connected with pregnancy and lying-in, inheritance, magic, sorcery, witchcraft, religion (Kali, Sakti, Sastha, hook-swinging, minor deities and demons, ancestor-worship, temples, serpent-worship, death and funeral ceremonies, pollution-bathing) caste-occupations, cultivation (paddy, coconut, sesamum), food, status among the Hindus, dress, etc. Contains many valuable data.
- Laufer (B.)** Zum Bilde des Pilgers Hsüan Tsang. (Globus, Brnswgw., 1905, LXXXVIII, 257-258.) Discusses the various paintings, images, etc., purporting to represent Hsüan Tsang. According to Chinese reports a fresco painting of him exists in the Jo-K'ang temple at Lhasa.
- Ein angebliches Christusbild aus der T'ang-Zeit. (Ibid., 281-283, 3 fgs.) Discusses a picture reproduced by Giles in his *Introd. to the Hist. of Chinese Art*, and by him thought to represent Jesus and two Nestorian priests, and to belong to the seventh century. L. attributes it to the sixteenth century, and shows that the figures are Buddha, Lao-Tse, and Confucius.
- Magniac (C. V.)** A visit to the Court of the Tashi Lama. (Ninet. Cent., Lond., 1906, 255-270.) Contains notes on monasteries, Tibetan head-gear, horse-trappings, official dress, medical services, the Tashi Lama and his surroundings, the monastic city of Tashilhümpo (with the tombs of the Lamas), etc.
- Moore (D. M.)** Three days sojourn in Portuguese Goa. (Cheltenham Ladies' Coll. Mag., Chelt., 1906, 43-49.) Portuguese who come to Goa "do nothing," have no idea of sport, never bring their wives, and smoke continually in miserable cafés. The old city is in ruins, and the Goanese furnish the English in India with many cooks, clerks, etc.
- Roux (—)** Contribution à l'étude anthropologique de l'annamite tonkinois. (Bull. Soc. d'Anthr. de Paris, 1905, v^e s., VI, 321-350, 4 fgs.) Gives iconographic (10 types figured), anthropometric and anatomic (av. stat. 1622 mm.; av. weight 52.2 kilogr.; av. chest-girth 795.9), physiological and psychological (acclimation good in Delta, poor in Upper Tonkin; acquisition of language by child not more precocious than European; memory well-developed, initiative

less; intelligence lively; affective feelings less developed than among whites; resistance to pain greater among the poor classes than among the rich, but general sensibility to pain hardly less among Annamites than among Europeans; well-developed religiosity "hereditary"; patriotism marked; honesty equal to that in general of French peasants; among chief vices are gambling, opium-using, — pederasty not so common as generally believed, and pathologic data (dominant disease is malaria; typhoid fever is rare; ulcers known as "Annamite sores" are common) concerning the Annamites of Tonkin. The anthropometric data relate to 70, the medical to 146 individuals.

Tanaka (T.) *Shinranism* — A Study in Japanese Buddhism. (Hartf. Sem. Rec., Hartford, Conn., 1905-6, xvi, 35-58.) Treats of the life, teaching and doctrines of Shinran (1173-1262 A. D.), the originator of a system of Buddhism, which T. styles "a form of protestantism (Buddhism is 'but Roman Catholicism, without Christ, and in Asiatic form') believing in Amitabha Buddha (no real historical figure) instead of Jesus Christ."

Völling (A.) *Die Haartracht der Chinesen*. (Anthropos, Salzburg, 1905, I, 60-64, 3 figs.) Describes the hair-dress of the Chinese (the same with boys and girls till 4-5 years; or at the latest 6; a sort of Franciscan tonsure for boys up to 12, then adult style; girls of 6 years unite the earlier three "tails" into one, and have front of head shaved, — other varieties are noted) young and adult. Mourning interferes with head-dress and Christianity has also initiated some changes in certain communities.

W. (R.) *Ethnische Eigentümlichkeiten des Japanerfusses*. (Globus, Brnschw., 1906, LXXXVIII, 317-318.) Résumés Buntaro and Yaso Adachi's recent studies of the Japanese foot.

White (G. E.) *Present day sacrifice in Asia Minor*. (Hartf. Sem. Rec., Hartford, Conn., 1905-6, xvi, 113-121.) In general, "the common people of our peninsula offer sacrifice voluntarily at the critical periods of life, perform the service with or without a priest or imam, and use the meat much as their own need or sense of propriety dictates; the flesh is never burned." Obligatory sacrifices are few. Each village has its sacred place, but no altar. Nominal Christians vow and kill on Saturday with sacrificial ceremony the

cock for the Sunday dinner. Sacrificial meals for the poor, prayers for rain, etc., are noted. Various Mahometan rites are referred to.

INDONESIA, AUSTRALASIA, POLYNESIA

Baessler (A.) *Abbildungen von alten beschnitten Maori-Särgen*. (Z. f. Ethn., Berlin, 1905, XXXVII, 971-973, 3 pl., 1 fig.) Describes six old carved Maori coffins of pine now in the Auckland Museum. They represent human beings in grotesque form. Such coffins are rare in museums, and their age is estimated at over 200 years.

— *Tahitische Legenden*. (Ibid., 920-924.) Résumés Tahitian legends of the origin of the isthmus of Taravao (accounts also for the heat in the island), origin of cocoa-palm (the eyes of the dead eel can still be seen), the last cannibal on Tahiti, origin of the name *Huahine* (from *Huavahine*, a word referring to coitus).

— *Ueber Fischen auf Tahiti*. (Ibid., 924-940, 6 figs.) Treats of seasons, months, days, etc., for fishing, modes of capturing fish (with hands, with hip-cloth, with baskets; by clubbing, etc.; by poisoning the water; with spears, hooks, snares; with nets, etc.), festivals connected with fishing, etc. With the taking of the *varo*, a sort of sea-crab, goes a certain song (p. 934).

Biro (L.) *Daten zur Schifffahrt und Fischerei der Bismarck-Insulaner*. (Anz. d. Ethnogr. Abt. d. Ung. Nat. Mus., Budapest, 1905, III, 57-73, 26 figs.) Treats of navigation (the mon-canoe of the Siara region and the equipment; canoe ornamentation; the *bul* canoes of Mateisom in New Hanover) and fishing (nets, — often owned by many individuals in common, or by the community; traps, spears; poisoning, etc.) among the natives of the Bismarck islands.

Bohatta (H.) *Das javanische Drama, wajang*. (Mitt. d. Anthr. Ges. in Wien, 1905, XXXV, 278-307.) After an introduction on the history, nature, character, technique, varieties, etc., of the Javanese drama, Dr B. gives for the first time in German the complete text of a *wajang*, and for the first time in any European language the text of a Javanese sketch or *pakem*, "Irawan's Wedding." The *wajang* in question is *Lakon Abi-*

jasa, based on a tale in the Mahābhārata. The wajang-play was popular in Java in the twelfth century, so its origins lie beyond that period.

Erb (J.) Ein Fund von Steinwaffen in Süd-Sumatra. (Int. A. f. Ethnogr., Leiden, 1904, XVI, 173-175, 4 fgs.) Describes two stone weapons (a lance-head and a second piece of undetermined use) found in 1901 at Tjahia Negri at the edge of the mountains in the Sunge Septutih division of Lampong.

Giuffrida-Ruggeri (V.) Crani dell' Australia, della Nuova Caledonia e delle Isole Salomone. (A. d. Soc. Rom di Antwp., 1905, XII, Estr., pp. 31, 2 fgs.) Treats, with tables of measurements of three Australian, three New Caledonian and six Solomon Islands crania. The two New Caledonian skulls are "absolutely typical of the South Pacific region." The Solomon Islands skulls are morphologically superior to the Australian, New Caledonian and Papuan and are not marked by Melanesian characters,—this indicates the presence of an "Oceanic" race in the sense of Stratz (from Indonesia to Samoa, and from Hawaii to New Zealand).

Graebner (F.) Einige Speerformen des Bismarck-Archipels. (Globus, Brnschw., 1905, LXXXVIII, 333-336, 11 fgs.) Describes and compares spears from Mutschau and New-Hanover in particular; also specimens from other islands. The Mutschau and New-Hanover types are related, the former being perhaps primitive. The Mutschau and Potsdamhafen spears probably belong with the three, part North-Australian.

Krämer (A.) Die Gewinnung und die Zubereitung der Nahrung auf den Ralik-Ratakinseln, Marshallinseln. (Ibid., 140-146, 7 fgs.) Treats, with some detail, of the obtaining of food and its preparation in the Ralik-Ratak archipelago. The ground-oven, cooking processes and utensils, use of bread-fruit, arrow-root, cocoa-nut, pandus products, etc., are described. Many fish-names (also 15 native terms for ways of taking fish) are given, besides text and translation of a dolphin-catching song, notes on the capture and use of this creature, etc.

Mathews (R. H.) Some initiation ceremonies of the aborigines of Australia. (Z. f. Ethn., Berlin, 1905, XXXVII, 872-879.) Describes the Wonggumuk and Kannyet ceremonies of initiation, the former with considerable detail, and for

the first time. The ceremonies include painting the novice, "fire-throwing," water-squirting, the game of "thunder," caricatures and representations sometimes obscene, "smoking" the boys, etc.

Nyuak (L.) Rites and customs of the Iban or Dyaks of Sarawak. (Anthropos, Salzburg, 1906, I, 11-23, 3 fgs.) First part of account drawn up by "a Dyak, who, when a child, had acquired the knowledge of reading and writing at the Mission school at Kanovit, which he attended for several years," and translated (closely) by Very Rev. Edm. Dunn, Prefect Apostolic of Labuan and N. Borneo, who contributes a general introduction. Pages 18-22 contain in parallel columns Dyak texts and English translation descriptive of the spirits invoked by the Iban, gods and goddesses, their names, etc. The highest of all is *Batara*—then come the creator of matter, the mixer, the molder, the makers of heaven and earth, the maker of water and divider of streams, the maker of fruits, the helpers of man, etc.

Papillault (G.) Cours de sociologie. Méthodes générales. Application aux Australiens. (R. de l'Éc. d'Anthr. de Paris, 1905, XV, 243-261.) Treats the "first attempts at social organization" as revealed among the Australian aborigines. Based on Fison and Howitt, Baldwin Spencer and Gillen, etc. P. sees in tribal divisions and subdivisions only "successive limitations of promiscuity." The savage is neither a philosopher nor a machine,—he thinks under an extremely confused religious form. Group-marriage and class-division were in their beginnings confused.

Pösch (R.) Bemerkungen über die Eingeborenen von Deutsch-Neu-Guinea. (Z. d. Ges. f. Erdk. zu Berlin, 1905, 555-558.) Brief notes (from letter of 6 Aug., 1905) on the "four elemental populations" of this region: Coast peoples from Augusta river to Hüon gulf (Papua type), mountain-tribes of the Kai country, mountain-tribes of New Pomerania (Baining), people of New Mecklenburg (representing probably the purest Melanesian type).

Richter (O.) Unsere gegenwärtige Kenntnis der Ethnographie von Celebes. (Globus, Brnschw., 1905, LXXXVIII, 154-158, 171-176, 191-195.) Résumés our knowledge of the native tribes of Celebes, past and present, and discusses the chief problems of East Indian ethnology, the distribution of implements,

customs, etc. Hindu influence, according to R., has been underestimated. The Minahassa — Bolaang Mongondon group stands in contrast to the Bugi-Macassar-Central Celebean tribes. The Toalas of Sarasin represent probably a pre-Malayan type. The Minahassa are mixed. The ethnography of Celebes offers still great difficulties.

- S.** Paul und Fritz Sarasin's Forschungen in Celebes. (Ibid., 362-367, 9 fgs.) Résumés des Sarasin's recent book *Reisen in Celebes* (2 vols. Wiesbaden, 1905), treating of the Minahassa, who inhabit the east of the long northern peninsula and are completely under Dutch influence, the mountainous tribes of the Alfuros and Toradja, the Luwu country and its peoples, the Tokeja, and Tomuna and (particularly) the Toala of the Lamontjong mountains in the south, who represent the most primitive people of the island, the pile-dwellers of Limbotto and Matanna (the pile-dwellings erected probably for peaceful reasons and not merely for protection), etc.

Seidel (H.) Sprachen und Sprachgebiete in Deutsch-Mikronesien. (Ibid., 181-184.) Discusses chiefly Senfft's *Sprachenkarte von Deutsch-Mikronesien* (Berlin, 1905). Fritz and Safford's Chamorro monographs are noted. S. takes exception to Senfft's attempt to fix close relations between Nakuoro and Mariana islands. Kusaie has a language with some peculiar characteristics. The other linguistic areas are Ponape, etc., the central Carolines with the *exclave* on the Marianas, the west Carolines, Nukuoro, Jap with Ngulu, Palau, seven in all.

Senfft (A.) Sage über die Entstehung der Inseln Map und Rumung und der Landschaft Nimigil, Japinseln. (Ibid., 139-140.) These islands are said to have been created in consequence of the amours of a native and a beautiful maiden, — partly by her mother in anger, and partly as the result of the killing of the latter while in the form of a rat.

Stephan (E.) Beiträge zur Psychologie der Bewohner von Neupommern. Nebst ethnographischen Mitteilungen über die Barriai und über die Insel Hunt, Duvor. (Ibid., 205-210, 216-221, 25 fgs., map.) Treats of physical characters, life activities, pigeon-English, power of attention (weak), song and dance, attitude towards photographs and pictures (a lion was called "dog," or "pig"),

medicine and magic, weather charms, love charms, language, weapons, implements, instruments, etc., — these are figured and described. Worth noting is Dr S.'s statement that he detected in Selin, his guide and collector, "a fineness of feeling essentially that of a civilized man of fine feeling."

— Ein modernes Kolonialabenteuer. (Ibid., 325-331, 349-353, map.) Gives an account of the "founding" of Port Breton in New Britain by the Marquis de Rays in 1877-1881, one of the most remarkable swindles of the nineteenth century.

AMERICA

Barry (P.) Traditional ballads in New England, II-III. (J. Amer. Folk-Lore, Boston, 1905, XVIII, 191-214, 291-304.) Gives texts and variants, music, etc., of The Gypsy Laddie, Lord Randall, The Demon Lover, Young Beichan, The Elfin Knight, Lord Lovell, Bonnie James Campbell, Our Good Man, Young Hunting, Springfield Mountain, Henry Martin, from various parts of New England and Canada.

Berdau (E.) Der Mond in Volksmedizin, Sitte und Gebräuchen der mexikanischen Grenzbewohnerschaft des südlichen Texas. (Globus, Brnschw., 1905, LXXXVIII, 381-384.) Treats of Texan-Mexican folk-lore concerning the moon in medicine, customs, beliefs, etc., in the frontier regions of Starr and Hidalgo counties. The *parteras* (or "sages femmes"), with their lunar treatment of female diseases, moonshine-cures, due observance of moon-phases, lore of waxing and waning, sympathetic cures, etc., are described.

Boas (F.) Publications of the Jesup North Pacific Expedition. (Science, N. Y., 1906, N. S., XXIII, 102-107.) Critical résumé and review of works of Swanton (Haida ethnology), Jochelson (Koryak), Bogoras (Chukchee).

Bridge (C. A. G.) A great moral upheaval in America. Ninet. Cent., Lond., 1906, 205-218.) Emphasizes "the resemblance of the institutions of the Americans to those of their English kinsmen." Advance in the U. S. towards aristocratic conditions is noted. The English element has not been swamped by the non-English (list of Presidents, judges, heads of educational institutions, etc., show this).

- Cannstatt** (O.) Ueber die indianische Bevölkerung der alten Jesuitenreduktionen in Südamerika. (Z. f. Ethn., Berlin, 1905, xxxvii, 882-898.) Based on Dobritzsch, Sepp, Burgos (pages 888-897). Describes the life and routine of the Indian population in the old Jesuit "reductions" of South America.
- Carter** (Oscar C. S.) The plateau country of the Southwest and La Mesa Encantada (the Enchanted mesa). (Jour. Franklin Inst., Phila., June, 1906, 451-467, ill.) Reviews the results of the expeditions to this celebrated mesa in New Mexico by Libbey and Hodge in 1897, and agrees with the latter that the evidence is in favor of the former occupancy of the height by the Acoma Indians.
- Collins** (Mary C.) The training of the Indian child. (So. Wkmn., Hampton, Va., 1905, xxxiv, 390, 10 fgs.) General description of training of Siouan child, — infancy, rules of conduct, chivalry, play, home life, religion, etc.
- Del Campana** (D.) L'arte plumaria dei Mundurucu (Brasile) e di altri popoli del Sud-America. (A. p. l'Antrop., Firenze, 1905, xxxv, 177-197, 1 pl., 19 fgs.) Describes briefly 26 feather-work objects (articles of dress, ornaments, etc.) from the Mundurucu Indians of Brazil, now in the Florentine Museum, with notes on this art among other tribes, — Caribs, Arawaks, Roucouyennes, Indians of the Rio Napo, Tembê (Tupi), Ticuna (Arawak), Bororó, Carayá, Apiká, certain peoples of ancient and modern Peru, the ancient Calchaqui, many peoples of the Gran Chaco, the Charruas of Uruguay, some Patagonian, even Fuegian tribes, etc. The highest and most special development of art in feather-work in all South America occurs in Brazil, and the Mundurucu (numbering now 1429 souls, in the region of the Tapajoz and its affluents) are the most expert of all the Indians to whom the art is known.
- Dorsey** (G. A.) The Ponca sun-dance. (Field Col. Mus., Anthropol. Ser., Chicago, 1905, vii, 62-88, 35 pl.) Describes preparations, ceremonies, etc., of four days, paints and costumes, etc. This "sun-seeing dance," or "mystery dance," held when the moon is at least half full, is carried out by the "thundermen," or priests, who are "a close corporation with self-perpetuating power." The Ponca sun-dance is simpler than the Arapaho and Cheyenne and is an annual ceremony not dependent on the vow of an individual. The torture and painted dancers are also peculiar. Hypnotism is possibly employed.
- Fritsch** (G.) Versteinerter Ausguss von dem Mokassin eines Indianers. (Z. f. Ethn., Berlin, 1905, xxxvii, 970-971.) Describes a "petrified mocassin" from the south shore of the Little Slave lake in N. W. Canada. It may be a relic of tertiary man.
- Giachetti** (V.) Studi antropologici sugli antichi Peruviani. (A. p. l'Antrop., Firenze, 1905, xxxv, 201-301, 1 pl.) Gives details of description and measurement of 62 ancient Peruvian skulls (39 from Cajamarca, 6 from Lima, 6 from Tacora, 6 from "Chepen"; of the non-deformed, 14 were brachycephalic, 4 mesocephalic and one dolichocephalic) and 18 mandibles, belonging to the Regnoli collection (obtained in 1869) of the Pisa Anatomical Institute. Of the deformed skulls lengthened by the process 6 had the Aymara deformation, 16 fronto-suprainiac, 4 bregma parieto-subiniac or submentonian; of those broadened artificially 5 had fronto-subiniac deformation and 15 were plagiocephalic. Deformation slightly diminishes the known small capacity of Peruvian skulls, which are normally brachycephalic, but made artificially hyperbrachycephalic, or mesocephalic (and even dolichocephalic), according to the degree of deformation. In the broadened skulls the face becomes platopic, in the lengthened a little more prominent. Other corresponding changes in nasal and palatal structure occur. Bibliography of 54 titles.
- Hermant** (P.) Évolution économique et sociale de certaines peuplades de l'Amérique du Nord. (Bull. Soc. R. Belge de Géogr., Bruxelles, 1904, Extr., pp. 110.) This well-documented monograph on the economic and social evolution of certain American Indian peoples treats of the Eskimo (6-24); "Tinnehs," i. e., Athapascans (24-41); "Nootka-Colombians," i. e., Chinooks, Oregon tribes, Shastikas, Tsimshians, Kootenays, Salish, Kwakiutl, Tlinkits, Haida, Nootkas (41-64); Californian tribes (64-70); Algonquins (70-83); Sioux (83-94); Iroquois (94-100). The topics considered are: Habitat and distribution, dwellings, economic conditions, fishing, hunting, agriculture, technique and industries, social conditions (chiefs, authority, etc.), family (number of wives,

acquisition of wives, incest, stability of marriage, family property, inheritance, levirate, adultery, chastity, age of marriage, consent of woman, conjugal affection, etc.).

Janvier (T. A.) Legends of the city of Mexico. (Harper's Mo., N. Y., 1906, CXII, 258-265, 2 fgs.) English texts of 4 legends collected by the author in the city of Mexico.—legend of Don Juan Mannel, legend of the Puente del Clerigo, legend of the obedient dead nun, legend of the Callejon del Armado.

ten Kate (H.) Bemerkungen zur Mitteilung des Hrn. J. Kollmann über Rasengehirne. (Z. f. Ethn., Berlin, 1905, XXXVII, 991.) Points out that two of the brains in question are Araucanian, not Fuegian. Dr ten Kate agrees with Dr K., though less positively, in believing that as far as present data show, "there is no morphological or micro-anatomical determination of race-differences." According to ten Kate the "historic education" of which K. speaks is conditioned by "physical factors,"—psycho-physical and anthropogeographical belong together.

Kemp (J. F.) An interesting discovery of human implements in an abandoned river channel in southern Oregon. (Science, N. Y., 1906, N. S., XXIII, 434-436.) Describes finds of mortars and pestles in the auriferous gravels of the Deep Gravel Mining Co., near Waldo, Ore.

Laut (Agnes C.) Sea voyagers of the northern ocean. (Harper's Mo., N. Y., 1906, CXII, 291-298, 2 fgs.) Treats of the Russian adventurers in Alaska (Shelikoff, Baranoff, etc.) and their relations with the Indian tribes.

Lehmann (W.) Altmexikanische Muschelzierate in durchbrochener Arbeit. (Globus, Brnschw., 1905, LXXXVIII, 285-288, 4 fgs.) Describes a shell ornament (with 37 perforations) from Tampico now in the Berlin Ethnological Museum. Similar ornaments are reported from Guerrero, Morelia and Tuxpan (Vera Cruz). They all resemble the "shell gorgets" of the mound region of the U. S.

Die fünf im Kindbett gestorbenen Frauen des Westens und die fünf Götter des Südens in der mexikanischen Mythologie. (Z. f. Ethn., Berlin, 1905, XXXVII, 848-871, 19 fgs.) Treats of the five women of the west who died in child-bed and the five deities of the south in Mexican mythology, — dates,

symbols, etc. The five groups on the MS. are: East (tlapco, tonatiuh in ieuayan), north (mictlan), middle or above-below (aco-tlani), west (cihuatl-ampa), south (uitztampa, xochitlapan). The basis of the article is a fine example of Zapotec picture-writing, No. 20 of the Aubin collection in the Parisian Bibliothèque Nationale, the history of which is briefly given. Boban's previous interpretation is erroneous. The five *Ciuateteo* correspond to the five *Uitznahua* in so far as these relate to Tezcatlipoca. The five pairs of deities belong to the cardinal-points tonalamatl.

Matthews (B.) American character. (Columbia Univ. Q., N. Y., 1905, VIII, 97-114.) Discusses the characteristics of the American people as recently described by a French correspondent of Tolstoi. Prof. M. holds that the Americans are entirely devoted to money-making, hostile to art and all forms of beauty, devoid of ideals. America has contributed to civilization five things: Warred little and sought to substitute arbitration, set an example of the broadest religious toleration, made evident the wisdom of universal suffrage, welcomed all races into political freedom, diffused material well-being to a hitherto unheard-of extent.

Max Schmidt's Indianerstudien in Zentralbrasilien. (Globus, Brnschw., 1905, LXXXVIII, 314-317, 7 fgs.) Based on S.'s recent volume *Indianerstudien in Zentralbrasilien* (Berlin, 1905). Treats-briefly of the Guato (bow, fire-fan), Bakairi (fire-fan, etc.) Trumai (basket), Auetö (wooden masks).

Motta (J.) O Portuguez falado no Brazil. (R. da Soc. Scient. de S. Paulo, 1905, 65-82.) General discussion of the pronunciation, vocabulary, etc., of Brazilian Portuguese, with numerous illustrative examples. M. says that the vocabulary of Brazilian Portuguese is much richer than that of European Portuguese and even purer, since the former is less favorable to the imputation of foreign expressions; its syntax is more natural, euphonic and often logical. In Brazil a national language is creating a national literature.

Nelson (H. L.) The pleasant life of Père Marquette. (Harper's Mo., N. Y., CXI, 1905, 74-82, 5 fgs.) Account of some incidents in the life of the famous missionary, — the Joliet expedition. The

"Indians, who were descended from the Aztecs, and whose language was a Mexican dialect" were mythical, as N. should have noted.

Newell (W. W.) In Memoriam: Washington Matthews. (J. Amer. Folk-Lore, Boston, 1905, XVIII, 245-247.) Sketch of life and appreciation of scientific labors.

Post (C. J.) Indian music of South America. (Harper's Mo., N. Y., 1906, CXII, 255-257.) Brief account, with musical notations, of the flute-music of the Aymara Indians of Achicuchi, Sorata, etc. Some are sung at the great fiesta of Todos Santos. One song (at the expense of the whites) is very popular with the *cholos*, or half-breeds.

— An ethnological paradox. (Harper's Mo., N. Y., 1905, CX, 910-916, 6 fgs.) Treats of the Lecco Indians of the eastern slopes of the Bolivian Andes, who, according to the author, show "distinct Malaysian resemblances",—in physical characters, muscular development, costume, etc. Their balsas, huts, etc., are described. They have no death or burial ceremonies; no hieroglyphs or even crude pictures; no musical instruments. Their language is called *Rikiri* and they count on a basis of five five. Families are small.

— Across the highlands of the world. (Ibid., 1905, CXI, 20-26, 6 fgs.) Contains some notes on the Aymara Indians of Cocuta, Wailata, etc. In the latter village "are the real highlanders of the Andes, the makers of the chalonga and chuño that can only be prepared in the extreme cold of the high altitudes."

Santin de Prade (O.) Una spedizione ai "Coroados" nello Stato di S. Paola nel Brasile. (Anthropos, Salzburg, 1905, I, 35-48, 5 fgs.) Gives account of expedition of December, 1904, in search of the Coroados, the discovery of a clearing and cabin with implements, weapons etc., of various sorts. In the cabin were found the sick wife of a chief and a little girl,—all others had fled from "the hated Brazilians."

Sapper (K.) Aztekische Ortsnamen in Mittelamerika. (Z. f. Ethn., Berlin, 1905, XXXVII, 1002-1007.) Discusses the origin and distribution of Aztec place-names of Central America. S. believes that "outside the Pipil regions, the Aztec place-names of Central America are partly older formations of Aztec tradesmen and partly later creations under

Spanish influence." Since Aztec has been no longer an official language in the Indian countries, no new Aztec place-names have been formed.

— Das mexikanische Territorium Quintana Roo. (Globus, Brnshwg., 1905, LXXXVIII, 165-167, map.) Contains notes on the Mexican campaign of 1900-1904 against the Mayas and the organization of the new territory of Quintana Roo in eastern Yucatan, marking the final subjection of the Mayas.

Teschauer (C.) Mythen und alte Volks-sagen aus Brasilien. (Anthropos, Salzburg, 1905, I, 24-34.) First part of collection of myths and legends of the Brazilian Indians (with critical comments) relating to the *Korupira*, *Caapora*, *Caipora*, etc., a forest demon (the K. and the hunter; the K. and the poor man), and the *Anhangá* or *Yurupari*, a spirit of bad dreams (the A. and the child; the A. and the hunter). The attitude of the Indians towards these spirits is discussed. Influence of Christianity is suggested.

Thompson (E. H.) A page of American history. (Proc. Amer. Antiq. Soc., Worcester, Mass., 1905-6, N. S., XVII, 239-252.) Describes the participation of American adventurers in the rebellion of the Mayas of Yucatan in 1847.

Veatch (A. C.) On the human origin of the small mounds of the lower Mississippi valley and Texas. (Science, N. Y., 1906, N. S., XXIII, 34-36.) Cites passages from Foster, De Nadaillac, etc. Author holds that "the theory of human origin is in no way applicable to the great class of natural mounds which he has observed in Louisiana, Texas and Arkansas and along the Iron Mountain Railroad in southeastern Missouri." The situation does not serve human uses.

Verworn (M.) Indianische Reiseerinnerungen. (Corr.-Bl. d. D. Ges. f. Anthrop., München, 1905, XXXVI, 55-56.) Brief account of visit to various American Museums, with observations on the antiquity of the American Indian,—V. thinks he came (in possession of neolithic culture) from Eastern Asia at a comparatively late period.

— Pseudopaläolithische Steingeräten aus Nordamerika. (Ibid., 62-63.) Notes on a collection of "pseudo-paleolithic" flints obtained by the author in the neighborhood of Washington, D. C., in October, 1904.

- Wardle** (H. N.) The treasures of prehistoric Moundville. (Harper's Mo., N. Y., 1906, CXII, 200-210, 14 fgs.) Gives account of the investigation of "an ancient American city of the copper age," near Moundville (named after it), Alabama, and describes the chief remains as discovered by C. B. Moore. In the various mounds were found human bones and votive gifts, copper gorgets, pendants, hair-ornaments, etc., water-bottles of black ware, ceremonial axes, etc.) The most remarkable specimens are "a wonderful diorite vase of the crested wood duck," a remnant of a carved shell drinking cup, etc. The scarcity of actual weapons and the abundance of ceremonial and decorative art-objects suggest that "the ancient settlement on the Black Warrior River was not military, but a center of barbaric art and religion." The settlement is plainly pre-Columbian, no European remains at all occurring.
- Wissler** (C.) The whirlwind and the elk in the mythology of the Dakota. (J. Amer. Folk-Lore, Boston, 1905, XVIII, 257-268.) Discusses the "whirlwind moth" and analogues; the power

of the elk (and buffalo), particularly in sexual matters (a legend illustrating the use of elk "medicine" by young men to acquire power over and possession of women is given). The buffalo and the bear are said to partake of the power of the whirlwind with some tribes. The cocoon and moth are believed to imitate the whirlwind. Problems of imitation are presented by the Dakota and their interpretations "are the results of keen psychological introspection." The whirlwind in question is "the harmless little whirl," seen every clear day on the plains.

— Ethnic types and isolation. (Science, N. Y., 1906, N. S., XXIII, 147-149.) Points out how well-known ethnographical facts (e. g., the distribution of North American aboriginal linguistic stocks) correspond in a way to the observations recorded from both animal and plant life. California may have been a nursery or incubator of living stocks. Isolation has been an important factor in the development of ethnic types. Psychological barriers to diffusion may be thus created.

ANTHROPOLOGIC MISCELLANEA

International Bureau of Ethnography. — The Field Museum of Natural History, Chicago, has published the following free translation of a Memorial adopted by the Congress at Mons, Belgium, in September, 1905, providing for the organization of an International Bureau of Ethnography. The Field Museum and the United States National Museum have been invited to become members of the provisional organizing body.

ARTICLE 1. There is founded by the countries enumerated, and by all those countries which hereafter subscribe to the present agreement, a permanent Bureau entitled the International Bureau of Ethnography.

ARTICLE 2. The object of the Bureau is the organization, at common expense, of services pertaining to the scientific documentation relative to the social state, the manners and customs of different peoples, especially peoples of inferior civilization.

The Bureau especially concerns itself with the following objects :

1. The organization of a permanent bureau of inquiry, especially by :
(a) The publication of ethnographic and sociologic questions, keeping account of the initiatives of different countries and of the results obtained ;

- (b) The sending out of these questions through the medium of competent authorities to all those who are apt to furnish results, especially to Colonial officials, to explorers, to missionaries, etc.

2. The publication of the results of this inquiry on a uniform plan, or on a plan as uniform as possible.

3. The distribution of the results to the different contracting States, to participating learned associations, and to the public in general, under established conditions.

4. The elaboration of an ethnographic bibliography embodying the published writings (books and articles from periodicals) in all languages and in all countries.

- (a) Published at all times (progressive service).

- (b) Published during the current year (service to increase as much as possible).

5. The publication of the current part of this catalogue, and the communication of the results for the anterior part.

ARTICLE 3. To this end there is established in Brussels an International Bureau of Ethnography charged with the organization of such divers services.

ARTICLE 4. This Bureau enjoys all the rights attached to a civil person after the manner of permitting him to receive gifts and bequests, and of contracting for work and publication, of civil engagements in the sphere of their privileges.

ARTICLE 5. The Bureau functions under the direction of an international committee formed by the delegates of all the contracting States. This international committee will be composed of three delegates for each nation, of whom one delegate shall have the title of National Commissioner, who shall be especially designated.

They are nominated for a term of six years.

This committee will unite at least once every two years, and consider all the decisions and conclusions relating to the International Bureau of Ethnography. It shall be empowered to convene more frequently, but at the initiative of the executive of the bureau or at the demand of four of the adhering States.

ARTICLE 6. The national commissioners shall unite at least once each year and exercise the control of administration, and especially verify the accounts.

Each commissioner will be, in place of his government, the ordinary intermediary to the International Bureau of Ethnography. He will communicate to it the results received by way of missions, of inquiries or otherwise. He will transmit the requirements of the International Bureau to his Government or Principal.

ARTICLE 7. In the interval between sessions, the execution of the scientific decisions of the international committee, and the management of the administrative affairs, shall be confined to an Executive Bureau composed of the President, Permanent Secretary, and Assistant Secretary.

For scientific affairs not foreseen, the Bureau shall take, through correspondence, the advice of the delegates of the different governments.

Likewise for administrative affairs not foreseen, the Bureau will take, through correspondence, the advice of the national commissioners of the different governments.

It shall be the duty of the Bureau to fix the dates of the meetings of the international committee, as well as to convoke the delegates of the contracting States, indicating the order of the day of meeting.

The communications to the International Bureau of Ethnography with the adhering governments will be through the intermediary of the national commissioners.

ARTICLE 8. Each country may encourage the co-operation of its own learned men and own learned societies; but the communication of this organization shall be made to the International Bureau of Ethnography.

The Bureau may enter into direct relations with all societies of ethnography, of sociology, of geography, and other scientific organizations which wish to co-operate in the realization of the aim of the institution; likewise with men of science and, in general, individuals.

ARTICLE 9. If the amount of donations, legacies, and subsidies arising from individuals or free institutions, capitalized at 3 percent, reaches at least the sixth of the allowance of the participating States, there shall be formed a committee of donors which shall be represented by two members of the international committee.

ARTICLE 10. A report on the work and the financial administration of the Bureau shall be addressed each year to the adhering governments. To the report will be annexed a statement of the preliminary budget for the following year and the program of undertakings.

ARTICLE 11. The budget of the International Bureau of Ethnography will be supported by annual assessments of the contracting members and States, by the proceeds of the sale of publications and by taxes to be calculated upon information furnished, and by gifts and legacies.

The amount of the assessments assigned annually to the Bureau by the adhering States is fixed at the minimum figure of ———. (This amount shall be fixed at the first meeting of the international committee; it will depend in effect upon divers circumstances not yet determined, especially upon the number of languages into which the documents shall be translated and published.)

The assessments, not consumed in the operations, shall be reported at the end of the year. They may serve, should there be a surplus, to constitute a reserve fund.

Above the annual assessments a capital of ——— (likewise reserved as above) shall be put the first year at the disposition of the Bureau for installation expenses. The States and Colonies which shall hereafter make use of the privileges of joining, according to Article 17, shall have to pay their share of this sum upon the basis of assessments as fixed in Article 13.

ARTICLE 12. The States and Colonies which withdraw from the Bureau at the expiration of their first term of twenty years, shall lose their participating rights in a common fund.

In case of liquidation the common fund shall be partitioned among the States and Colonies of the International Bureau after a basis of distribution as provided for in Article 13.

ARTICLE 13. The contributing part of the contracting States in the annual assessment to the International Bureau of Ethnography, as well as the first installments, is established in units upon the double base of their population and of economic activity.

As for population, a unit shall be considered as 500,000 inhabitants. As for economic activity, a unit shall be considered as 50,000,000 francs of foreign commerce, imports and exports together.

ARTICLE 14. The amount of the personal contributions of each State is rendered in an agreed proportion in subscriptions to publications calculated at a price of public sale reduced one-fifth.

The use of collections by the delegates of the central administration of the adhering States is free. It shall answer, without expense, to all their demands for information.

ARTICLE 15. The total assessment of the contracting States divided by the sum of the units attributed to each of them in execution of the preceding arrangements, will give the unit of the part leviable. It will suffice to multiply this by the number of units assigned to each of the States to find the amount of its contribution to the budget of the International Bureau of Ethnography.

ARTICLE 16. In order to place the institution in position to realize its object as exactly and completely as possible, the contracting parties engage themselves each so far as concerns its own country :

1. To execute, as rapidly as possible, the obligations springing from Article 2.

2. To address to the International Bureau :

- (a) A copy of all official publications (books or periodicals) appearing which pertain to the aim of the institution.

- (b) The list, manuscript or printed, of all works (books or pamphlets) which shall appear in the future. This list, which shall be addressed to the Bureau of Ethnography with as much regularity as possible, shall be held as official. It shall indicate for each work the name and surname of the author, or the name of the publisher, and the title of the work with eventually such necessary supplementary directions as to assure a methodic

classification by contents of the work, on examining the title, the place and date of publication, the size, number of pages, and price.

ARTICLE 17. The rule of procedure having the same obligatory force as the present convention, but within the limits of this same, shall be made by the international committee.

ARTICLE 18. Those States and Colonies which have not taken part in the present convention may be admitted later. Their accession will be made in writing to the Belgian Government which shall make the fact known to all other contracting governments. The accession shall carry in full right adhesion of all the clauses and admission to all the advantages stipulated in the present convention.

ARTICLE 19. The present convention shall go into effect the ——— and shall remain in effect during twenty years.

If twelve months before the expiration of the first twenty years, the present convention shall not disband, the Bureau shall exist during a new period of twenty years, and so on. Withdrawal shall be addressed to the Belgian Government. It shall not be in effect as regards the country which shall make it, the convention remaining executor for the other adhering countries.

Catalog of the Bishop Jade Collection. — Since the death of Mr Heber R. Bishop, three years ago, the magnificent collection of jade objects which he presented during his lifetime to the Metropolitan Museum of Art, in New York, has been finally installed, in fifteen elegant cases of gilt bronze and plate glass, in the northeast room of the second floor of the new wing of the Museum building, now known as Bishop hall. This room was arranged and decorated, under Mr Bishop's personal direction, by the noted firm of Allard Frères, of Paris, with the object of making it the finest example on this continent of the style of Louis XV. So successfully has this been done that the Bishop hall is regarded as never having been excelled even in the time of Louis XV himself.

In a previous notice of this subject¹ reference was made to the remarkable Catalog of the collection that Mr Bishop planned as early as 1886, and the researches in connection therewith that he provided for. While it is a source of profound regret that Mr Bishop did not live to see the fruition of his labors, it is with gratification that I am able to announce the final completion of this beautiful and unique work and its distribution in accordance with the terms of Mr Bishop's will. With the

¹ See *American Anthropologist*, 1903, vol. IV, pp. 111-117.

exception of six royal personages the Catalog has in no case been sent to an individual, and no copy has been or will be sold.

The work bears the title *Catalog and Investigations in Jade*. Published by Heber R. Bishop. New York, 1905. It consists of two folio volumes, printed on the finest quality of linen paper, containing 570 pages (vol. I, 277 pp.; vol. II, 293 pp.) measuring $20\frac{5}{8} \times 16\frac{1}{4}$ inches. There are 150 full-page plates (water-colors, etchings, and lithographs), and nearly 300 pen-drawings in the text. The volumes weigh, respectively, 69 and 55 pounds. This great work, the edition of which is one hundred copies, aggregated in cost about \$1,850 per copy, thus doubling that of Audubon's monumental folio, *The Birds of America*. From an artistic point of view it stands alone as perhaps the greatest work ever issued — it is certainly the greatest catalog of a collection in any branch of science or art.

The preparation and publication of the Catalog was made possible by the liberality of Mr Bishop, who spared no expense or care in its execution. About thirty scientific and art specialists in Europe and America contributed to the subject to which the work is devoted, and the illustrations were prepared with the utmost regard for accuracy and artistic merit. Chinese and Japanese artists were employed to execute many of the drawings, and experts in color were freely consulted.

The Catalog possesses a special interest from the fact that all the scientific investigations conducted in connection with it are based on specimens in the Bishop collection. The entire mineralogical and archeological researches were in charge of the writer, who spent more than twelve years in carrying on the investigation. The other collaborators are: Dr Stephen W. Bushell, G.M.C., Chinese article; Dr Robert Lilley, editor; Tadamasa Hayashi, Chinese and Japanese; Dr William Hallock, adjunct professor of physics in Columbia University; Dr D. L. Penfield, professor of mineralogy in Yale University; Dr Henry W. Foote, Sheffield Scientific School, Yale University; Dr Joseph P. Iddings, professor of petrology in the University of Chicago; Prof. F. W. Clarke, chief chemist of the United States Geological Survey; Mr Ira Harvey Woolson, adjunct professor of engineering in Columbia University; Mr Logan Waller Page, in charge of physical tests, United States Department of Agriculture; Dr Charles Palache, professor of petrography in Harvard University; Mr Louis V. Pirsson, professor of petrography in Yale University; Dr Henry S. Washington, petrographer; Prof. L. von Jaczewski, professor of mineralogy and geology in the University of Ekaterinoslav, St Petersburg; Herrn Geheimrath Dr A. B. Meyer, director of the

Königliches Zoologisches und Anthropologisch-Ethnographisches Museum at Dresden; Herrn Dr Max Bauer, director of the Mineralogisches Institut der Königlichen Universität at Marburg; Mr Robinson, artist; the late Dr Thomas Wilson, curator of prehistoric archeology, United States National Museum; Dr Joseph Edkins of Shanghai; Prof. A. Damour of Paris; Dr Ludwig Leiner, curator of the Rosegarten Museum at Constance; Mrs Zelia Nuttall of the Peabody Museum, Cambridge, Mass.; Miss Eliza R. Scidmore of Washington; Dr F. Berwerth of the Hof Museum at Vienna; Prof. Ernst Weinschenk, professor of mineralogy in the Mineralogisches Institut at Munich; the Field Columbian Museum at Chicago; the Smithsonian Institution at Washington; the American Museum of Natural History at New York.

Among the illustrators may be mentioned the noted French etchers Sulpis, Guerard, Richard, Piquet, LeRat, and Coutry. Twelve of the plates consist of a series of water-color sketches illustrating all the processes of jade-working, and are the product of native Chinese artists. A number of the photographic plates are by Mr C. W. Smillie of the United States National Museum. The lithographs are the work of Messrs Prang & Co. and Forbes & Co. of Boston. The letter-press was executed by Messrs Theodore L. De Vinne & Co. of New York, who regard it as the most important work among the many celebrated productions of the De Vinne press. The paper used is the product of the mills of the L. L. Brown Paper Co. of Adams, Mass. The binding of the volumes, which was intrusted to Strikeman & Co. of New York, is in full green levant, and the beautiful tooling and perfect workmanship are fully in keeping with the other features of the Catalog.

For the benefit of students who may desire to consult the Catalog, the following list of recipients is given:

Royal personages: The Prince of Wales, the Emperor of Germany, the Czar of Russia, the Queen of Holland, the Mikado of Japan, the Emperor of China.

United States: Metropolitan Museum of Art, New York; American Museum of Natural History, New York; Grolier Club, New York; New York Public Library; Columbia University, New York; Harvard University, Cambridge; Library of Congress, Washington (two copies for copyright); United States National Museum, Washington; Yale University, New Haven; Girard College, Philadelphia; Johns Hopkins University, Baltimore; Cornell University, Ithaca; Princeton University; Boston Public Library; Museum of Fine Arts, Boston; University of California, Berkeley; Golden Gate Museum, San Francisco; Medford

Library, Medford, Mass. ; Field Museum of Natural History, Chicago ; John Crerar Library, Chicago ; Art Institute, Chicago ; New York State Library, Albany ; Public Library of Saint Louis ; State Library, Richmond, Va. ; Enoch Pratt Free Library, Baltimore ; Free Library, Philadelphia ; Public Library, St. Paul ; Carnegie Museum, Pittsburg ; Brooklyn Institute of Science and Art.

Canada : Toronto University ; Public Library of Toronto ; McGill University, Montreal.

Mexico : Biblioteca Nacional, City of Mexico.

England and Scotland : British Museum Library, London ; South Kensington Museum, London ; University of London ; Bodleian Library, Oxford ; University Library, Cambridge ; Fitzwilliam Museum, Cambridge ; Birmingham Free Library ; Manchester Free Library ; Edinburgh University ; University of St Andrew's, Scotland ; University of Glasgow ; University of Aberdeen.

Germany : University of Berlin ; Königlische Kunst-Gewerbe Museum, Berlin ; Königlische Bibliothek, Berlin ; Königlches Zoologisches und Anthropologisch-Ethnographisches Museum, Dresden ; University of München ; University of Marburg ; University of Breslau ; University of Heidelberg ; Mineralogical Institute of Hesse.

France : Bibliothèque Nationale, Paris ; Musée d'Histoire Naturelle, Paris ; Museum of the Louvre, Paris.

Austria : Die Bibliothek des Kaiserhaus, Vienna ; Hof-Kunstmuseum, Vienna ; K. K. Universitäts-Bibliothek, Vienna ; National Museum of Hungary, Budapest.

Italy : Library of the Vatican, Rome ; Bibliotheca Nazionale Vittorio Emanuele, Rome ; Bibliotheca Nazionale Centrale, Florence.

Spain : Biblioteca Nacional, Madrid.

Sweden : Library of the Royal Ethnographical Museum, Stockholm.

Norway : Library of the University of Christiania.

Denmark : Royal Library, Copenhagen.

Russia : Imperial Library of Russia, St Petersburg ; Library of the Summer Palace, St Petersburg ; Berg Akademie, St Petersburg ; University of Warsaw.

Japan : Imperial Museum of Tokio.

Belgium : Bibliothèque Royale, Brussels.

An extended description of the *Catalog*, with illustrations, has been published as Occasional Notes No. 11, Supplement to the Bulletin of the Metropolitan Museum of Art, New York, May, 1906.

GEORGE F. KUNZ.

American Association of Museums. — During the first week of this year the directors and the executive officers of several leading museums of this country met in Washington to discuss the advisability of forming an association of museums on lines similar to those of the Museums Association of Great Britain. As a result of this meeting it was decided that those interested directly in all museums should be invited to attend a formal organization meeting in New York city on May 15, and an invitation was extended by the American Museum of Natural History that the first meeting be held in that institution. This invitation was extended on behalf of the Washington confrères, through the pages of *Science*, by Dr W. J. Holland, director of the Carnegie Museum of Pittsburg.

On the day appointed there met in the American Museum of Natural History about one hundred museum workers, representing nearly all the prominent museums of the United States, including the Bernice Pauahi Bishop Museum of Honolulu. The meeting, which extended over two days, held two sessions on the first day in the American Museum of Natural History, and two on the following day at the Botanical Museum in Bronx Park. The first day the delegates were the guests at luncheon of the trustees of the American Museum of Natural History, and on the second day of the trustees of the Botanical Museum. The luncheon of the second day was especially notable as it was held at the Hermitage, where several short speeches were made, which did much toward strengthening the bond of relationship among the representatives of the various museums. The serious work before the delegates, which occupied the greater part of the four sessions, was the consideration of a report presented by a committee composed of Dr W. J. Holland of the Carnegie Museum, Dr William M. R. French of the Art Institute of Chicago, Professor P. M. Rea of the College of Charleston, Dr James E. Talmage of the Deseret Museum of Salt Lake City, and Dr W. P. Wilson of the Philadelphia Commercial Museum. This report was finally adopted as a preliminary constitution, to remain in force for one year and subject to revision at the next annual meeting. After the formal adoption of the constitution, the following officers were elected:

President, Dr H. C. Bumpus, Director of the American Museum of Natural History, New York. *First Vice-President*, Dr William M. R. French, Director of the Art Institute of Chicago. *Second Vice-President*, Dr W. J. Holland, Director of the Carnegie Museum, Pittsburg. *Secretary*, Dr George A. Dorsey, Curator of Anthropology, Field Museum of Natural History, Chicago. *Treasurer*, Dr W. P. Wilson, Director of the Philadelphia Commercial Museum, Philadelphia. *Councilors for*

three years, Dr Richard Rathbun, Assistant Secretary of the Smithsonian Institution in charge of the National Museum, Washington, and Professor E. S. Morse, Director of the Peabody Museum, Salem, Mass. *Councilors for two years*, Dr N. L. Britton, Director-in-chief, New York Botanical Garden, Bronx Park, New York, and Dr James E. Talmage, University of Utah, Salt Lake City. *Councilors for one year*, Mr F. A. Lucas, Curator-in-chief of the Brooklyn Institute of Arts and Sciences, and Mr William H. Goodyear, Curator of Fine Arts of the Brooklyn Institute Museum.

During the interval occupied by the organization committee in preparing the constitution and during the balloting for officers, papers were read as time permitted. The titles of the more important papers presented are as follows :

Is It Desirable to Introduce Departments of Geography in Educational Museums? Dr W J McGee.

The Two Kinds of Museums. Dr Benjamin Ives Gilman.

The Aims and Principles of the Construction and Management of Museums of Fine Arts. Dr Benjamin Ives Gilman.

Museums and Museum Work for Public Schools. Professor Henry Montgomery.

A Method of Recording Bird Records. Dr P. M. Rea.

The Educational Arrangement of Natural History Museums. Mr G. C. Baker.

Metallic Cases in Museums. Dr Milton J. Greenman.

On May 17th a meeting of the Council was held, lasting nearly the entire day, in the office of President Bumpus. At this time certain working rules were considered and adopted for the guidance of the Council during the ensuing year ; plans were discussed looking toward the success of the next annual meeting, which the Association had already determined should be held in Pittsburg in accordance with an invitation extended to the Association by the director and trustees of the Carnegie Institute, the meeting to be held in May or June, as shall later be determined by the Council. At this meeting also committees, made necessary by the presentation of certain resolutions on the previous day, were appointed. Of these resolutions, the following are of general interest :

(1) The presentation of the claims of the members of the staffs of museums to the committee in charge of the Carnegie Foundation for the Promotion of Teaching. (2) The securing of such legislation as will extend to the more important museums of this country such special opportunities as are now offered to the United States National Museum by

the different departments of the national government. (3) The securing of more favorable postal rates for the publications of the Association. (4) The alliance of the Association with the National Educational Association.

The object of those originally responsible for the calling together of the Association seems to have met with unexpected and gratifying success. Not only was the attendance much larger than had been anticipated, but the feeling which prevailed throughout and characterized every stage of the proceedings was entirely in accord with the aims of the Association — the promotion of a better understanding and the affording of a closer bond of union among those engaged in museum work in America.

GEORGE A. DORSEY,

Secretary.

Mesa Verde National Park. — By act of Congress approved June 29, 1906, the Mesa Verde National Park was created. The law reads as follows:

Be it enacted [etc.], That there is hereby reserved from settlement, entry, sale, or other disposal, and set apart as a public reservation, all those certain tracts, pieces, and parcels of land lying and being situate in the State of Colorado, and within the boundaries particularly described as follows: Beginning at the northwest corner of section twenty-seven, township thirty-five north, range sixteen west, New Mexico principal meridian; thence easterly along the section lines to the southwest corner of the southeast quarter of section twenty, township thirty-five north, range fifteen west; thence northerly to the northwest corner of the southeast quarter of said section; thence easterly to the northeast corner of the southeast quarter of said section; thence northerly to the northwest corner of section twenty-one, said township; thence easterly to the northeast corner of the northwest quarter of said section; thence northerly to the northwest corner of the southeast quarter of section sixteen, said township; thence easterly to the northeast corner of the southeast quarter of section fifteen, said township; thence southerly to the southeast corner of said section; thence easterly to the southwest corner of section thirteen, said township; thence northerly to the northwest corner of the southwest quarter of said section; thence easterly to the northeast corner of the southwest quarter of said section; thence northerly to the northwest corner of the northeast quarter of said section; thence easterly to the northeast corner of said section; thence northerly to the northwest corner of the southwest quarter of section seven, township thirty-five

north, range fourteen west ; thence easterly to the northeast corner of the southwest quarter of said section ; thence northerly to the northwest corner of the southeast quarter of section six, said township ; thence easterly to the northeast corner of the southwest quarter of section four, said township ; thence southerly to the northwest corner of the southeast quarter of section nine, said township ; thence easterly to the northeast corner of the southeast quarter of said section ; thence southerly to the northwest corner of section twenty-two, said township ; thence easterly to the northeast corner of the northwest quarter of said section ; thence southerly to the northwest corner of the southeast quarter of said section ; thence easterly to the northeast corner of the southeast quarter of said section ; then southerly to the northwest quarter of section twenty-six, said township ; thence easterly to the northeast corner of the northwest quarter of said section ; thence southerly to the southeast corner of the southwest quarter of section thirty-five, said township ; thence easterly to the northeast corner of section two, township thirty-four north, range fourteen west ; thence southerly along the section line between sections one and two and between sections eleven and twelve to the northern boundary of the southern Ute Indian Reservation ; thence westerly along the northern boundary of said reservation to the center of section nine, township thirty-four north, range sixteen west ; thence northerly along the quarter-section lines to the northwest corner of the southeast quarter of section twenty-eight, township thirty-five north, range sixteen west ; thence easterly to the northeast corner of the southeast quarter of said section ; thence northerly to the northwest corner of section twenty-seven, said township, the place of beginning.

SEC. 2. That said public park shall be known as the Mesa Verde National Park, and shall be under the exclusive control of the Secretary of the Interior, whose duty it shall be to prescribe such rules and regulations and establish such service as he may deem necessary for the care and management of the same. Such regulations shall provide specifically for the preservation from injury or spoliation of the ruins and other works and relics of prehistoric or primitive man within said park : *Provided*, That all prehistoric ruins that are situated within five miles of the boundaries of said park, as herein described, on Indian lands and not on lands alienated by patent from the ownership of the United States are hereby placed under the custodianship of the Secretary of Interior, and shall be administered by the same service that is established for the custodianship of the park.

SEC. 3. That the Secretary of the Interior be, and he is hereby authorized to permit examinations, excavations, and other gathering of objects of interest within said park by any person or persons whom he may deem properly qualified to conduct such examinations, excavations, or gatherings, subject to such rules and regulations as he may prescribe : *Provided always*, That the examinations, excavations, and gatherings are undertaken only for the benefit of some reputable museum, university, college, or other recognized scientific or educational institution, with a view to increasing the knowledge of such objects and aiding the general advancement of archæological science.

SEC. 4. That any person or persons who may otherwise in any manner willfully remove, disturb, destroy, or molest any of the ruins, mounds, buildings, graves, relics, or other evidences of an ancient civilization or other property from said park shall be deemed guilty of a misdemeanor, and upon conviction before any court having jurisdiction of such offenses shall be fined not more than one thousand dollars or imprisoned not more than twelve months, or such person or persons may be fined and imprisoned, at the discretion of the judge, and shall be required to restore the property disturbed, if possible.

Field Museum of Natural History.—The Annual Report of the Field Columbian Museum (Field Museum of Natural History), of Chicago, for 1904-05, sets forth the progress of the Museum during the year. It is learned that of the eighteen lectures delivered under the Museum's auspices during the period covered by the report, four were devoted to anthropological topics ; while of the seven publications issued, all but three belong to the anthropological series, indicating strongly that in the publication of results, at least, the Department of Anthropology is far in advance of the other departments of the Museum. The same department has 600 books and 85 pamphlets in its special library, out of 36,572 volumes in the Museum, which would seem to indicate that the department is perhaps not receiving full exchange returns for its excellent series of publications. The entries in the accessions catalogues of the department total 72,551, of which 9,710 were made during the year. The former figure again shows the activity of the department, which exceeds in its entries those of any other with the exception of the department of Botany. Most of the collections procured were by purchase, a fact due in part to the St Louis Exposition. Field work, however, was not neglected. Dr C. F. Newcombe made collections on the Northwest coast ; Dr J. W. Hudson in northern California ;

and an important acquisition was gained through the generosity of Mr S. L. James, who gave a collection of Egyptian antiquities and a marble sarcophagus, the latter the work of Grecian or Roman artisans. A prepared head from the Jivaro Indians of Ecuador and a small collection of stone implements from Ireland were presented by Mr H. D. Higinbotham and Mr W. E. Prager respectively. Among the objects received through exchange are 100 skulls of Navaho and other Southwestern Indians, a Haida house-post, models of Mitla and Monte Alban, and a series of busts from Siberia. From the St Louis Exposition many valuable objects were obtained, including: the Zavaleta archeological collection from Calchaqui, Argentina; a collection of Tibetan bronzes and objects illustrating East Indian ethnology; Maori feather cloaks and carvings from New Zealand; an archeological collection from Egypt; ethnological collections from German East Africa, chiefly from the Massai, including 30 life masks, a costumed Massai warrior, and a carved doorway of native design; Siamese objects, including musical instruments, armor, and weapons; a choice series of Filipino objects, largely head-gear; a collection from the Pygmy region of Africa; Haida carvings; Hupa featherwork; Cinghalese ceremonial masks; about 200 objects from cliff-dwellings; and specimens from the Ainu, the Cheyenne, and the North Pacific coast Indians. Noteworthy among other collections obtained by purchase during the year were the Frederick Starr collection of Mexican objects, numbering about 6,000, and a rare throwing-stick from Utah cliff-ruins.

In the spring lecture course of the Museum, for 1906, the following are of anthropological interest:

March 10: Some Aspects of Archeological Work in Central America, by Dr Alfred M. Tozzer of Harvard University.

March 24: How People Live in Congo Land, by Dr D. W. C. Snyder of New York City.

April 14: The Seri Indians of Sonora, by Dr W J McGee of the St Louis Public Museum.

April 28: The Monuments of a Prehistoric Race, by Mr Frederick Monsen of San Francisco.

American Museum of Natural History.—The Report of the American Museum of Natural History for 1905, which has recently appeared, announces that general progress has been made during the year in the department of anthropology. The work of the Jesup North Pacific Expedition was continued under the general direction of Dr Boas, who paid particular



attention to the publication of results, consisting of three volumes of *Memoirs* of great scientific interest and importance. These volumes are *Kwakiutl Texts*, by Franz Boas and George Hunt; *Contributions to the Ethnology of the Haida of Queen Charlotte Islands*, by John R. Swanton; and *Religion and Myths of the Koryak*, by Waldemar Jochelson. In addition, Roland B. Dixon's paper on *The Northern Maidu* has been published in the series of *Bulletins*, and a manuscript on the Shasta Indians is awaiting publication. The field work in eastern Asia having been concluded, Dr Laufer devoted his time to the classification and arrangement of the Chinese collection, and to research on the collection of ancient Chinese pottery, his manuscript on the pottery of the Han period being practically completed.

Dr Clark Wissler, acting curator of the department, has devoted special attention to the material culture of the Plains Indians and to a general ethnographic survey of North America with a view of determining the limits of the various cultural areas. Researches have been conducted by Dr William Jones among the Chippewa Indians, by Dr P. E. Goddard among the Sarsi, Mr Frank G. Speck among the Yuchi, Miss Constance Goddard Du Bois among the Mission Indians, and by Dr J. B. Walker among the Dakota. Collections have been made on the Yakima reservation by Mr Edward Sapir and among the Blackfeet by Mr D. C. Duvall. The most noteworthy collection received during the year was that obtained from the Philippine village at the Louisiana Purchase Exposition, presented to the Museum by President Jesup. Other important accessions by the department of anthropology are an African collection, the gift of Mr George S. Bowdoin; a unique mummy from South America presented by Mr J. Pierpont Morgan; a large collection of baskets and ceremonial objects, by Mr Adolph Lewisohn; a number of valuable Indian specimens, by Mrs Albert Bierstadt, and a fine collection of Socorro pottery by Mr George G. Heye. A valuable painting, "The Song of Innookshuee," made in Greenland in 1894 by Mr F. W. Stokes, was presented to the Museum by Messrs George Foster Peabody, Robert C. Ogden, and Arthur Curtiss James.

The Loubat collection of Mexican antiquities has been strengthened by exchanges with other institutions; but the most important work accomplished in the division of Mexican and Central American archeology was the painting of a cast of the sculptured side of a room in the ruins of Chichen Itza, Yucatan, through the assistance of Miss Adela Breton, of England, whose exhibition of reproductions of ancient Mexican mural

paintings at the meeting of the International Congress of Americanists at New York in 1902 was so greatly admired.

The department of anthropology of the American Museum has recently lost the services of Dr Franz Boas, Mr Adolph F. Bandelier, and Dr Berthold Laufer. These losses, with the resignation of Professor F. W. Putnam and Dr Livingston Farrand last year, cannot fail to cripple seriously the activities of an institution that has done so much during the last few years to advance anthropology in America.

The San Francisco Disaster. — Anthropologists will learn with delight, after fearing the worst, that the chief center of anthropological work in the West — the University of California — passed practically uninjured through the terrible ordeal that beset San Francisco and its vicinity in April. As is well known, the museum of the University is installed in one of the buildings of the Affiliated Colleges in San Francisco, which is fortunately so isolated that it was not affected by the conflagration, while the earthquake did almost no damage either to the building, which is constructed with a view of resisting just such disturbances, or to the collections. But for the fact that much of the time and energy of the University corps has been devoted to the relief of the sufferers, the work of the Department of Anthropology would have been continued uninterrupted. The members of the American Anthropological Association, whose interest was so closely drawn to the University during the California meeting in August and September last, will receive this word, which comes from Professor Putnam and Doctor Kroeber, with no small degree of pleasure. The chief injury to the University lies in the temporary impairment of its income, but an institution that has accomplished so much in so short a time will no doubt overcome this obstacle in the very near future.¹

It is with regret that so much cannot be said of Leland Stanford University at Palo Alto, for while the first reports were more or less exaggerated, later and authentic information of damage to the buildings is bad enough indeed. The libraries of San Francisco are also severe sufferers. Fortunately the Bancroft Library, which was acquired by the University of California a few months ago, as announced in these pages at the time, was saved intact, although in the path of the fire. At least half of the Sutro Library, which numbered about 200,000 volumes and which for years had been in storage awaiting final disposition as a public

¹ Since these lines were put in type word has been received that the Legislature has come to the relief of the University, so that no curtailment of its corps will be necessary.

library, was saved almost miraculously in the heart of the burned district. The California Academy of Sciences, the Public Library, the Mercantile Library, and the Mechanics Institute (the last two had recently been consolidated), were destroyed, as were also the archives of the Surveyor General of California which contained Spanish documents of historical and ethnological value.

The suggestion is here offered that the American Anthropological Association and the institutions in touch with it send such reprints, duplicates, and other scientific publications (except those of the Smithsonian) as may be available, to the California Academy of Sciences, addressed in care of the Smithsonian Institution, Washington, D. C. The Smithsonian Institution announces that it will gladly forward all such publications from Washington to San Francisco without cost to the sender. Publications sent by mail may be directed for the present to the California Academy of Sciences in care of the University of California at Berkeley, which will hold them until the Academy can take steps toward rebuilding. Such action will do much toward replenishing the splendid library of the Academy that has been so great a boon to students on the Pacific coast.

Professor Putnam and the History of Religions Club. — At the March meeting of the History of Religions Club of Harvard University, a Club founded by Professor C. H. Toy some twelve or thirteen years ago, Professor F. W. Putnam, one of the charter members, was presented with an autograph letter of congratulation by the members of the Club, in recognition of the fiftieth anniversary of his connection with the University. Professor C. R. Lanman also read the following lines, written by him in honor of the occasion, and Professor Putnam, after replying, gave later in the evening some entertaining reminiscences of the University as it was fifty years ago, and of his association as a student with Louis Agassiz.

R. B. D.

Thou scion of a sturdy English stock,
Putnam of Puttenham in Surrey fair, —
Which, once transplanted to New England rock,
Thereout life-sap did wrest, and flourished there, —
Which, from John Putnam's day, in Salem quaint,
Its branches green with others interlaced,
With Fiske, Ward, Appleton, and many a saint
Whose deeds the Bay State history have graced, —
A stock, whose men, e'en from the days of yore,
Great-grandsire, grandsire, sire, and thou, O friend,
In line direct through generations four,
To Harvard's bead-roll dignity do lend, —

Yoke-fellow true, — to thee thy friends do say,
 Full fifty years thy furrow hast thou plowed,
 Hast borne the heat and burden of the day,
 Accept from us our plaudit, hearty, loud.

Thy fathers, for three generations back,
 The Bible-name of Ebenezer bore.
 Thy name is Frederic ; nor doth it lack
 Its fitness, if we trust grammarian's lore.

For "rich in peace," thy spirit swayed thy mind
 So, that thou keptst the tenor of thy way
 Unswerved by praise or blame, and so didst find
 The light that lightens to the perfect day.

And not alone a Frederic art thou.
 The name of Ebenezer mayst thou claim,
 Thou "stone of help" in the great work that now
 Hath brought our Harvard to her splendid fame.

For as we follow from those early years
 The small beginnings, now so grandly grown,
 We see thy hand and heart, thy hopes and fears,
 In constant working, now by triumphs known.

The past of a mysterious folk to ken
 From grave or shell-heap, pueblo, serpent-mound,
 To read a book writ with nor ink nor pen, —
 Such was thy task. We see what thou hast found.

Old as the Old World is the New World's face.
 Its past no more can wholly hid remain.
 For, lo, the romance of a vanished race,
 Thou callest back and bidst to live again.

Preservation of Antiquities. — The bill "for the preservation of American antiquities," attention to which has already been directed in these pages, has been finally enacted into law by approval of the President on June 8. As it now stands on the statute books the act is as follows :

Be it enacted [etc.], That any person who shall appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall, upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not

more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court.

SEC. 2. That the President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected: *Provided*, That when such objects are situated upon a tract covered by a bona fide unperfected claim or held in private ownership, the tract, or so much thereof as may be necessary for the proper care and management of the object, may be relinquished to the Government, and the Secretary of the Interior is hereby authorized to accept the relinquishment of such tracts in behalf of the Government of the United States.

SEC. 3. That permits for the examination of ruins, the excavation of archaeological sites, and the gathering of objects of antiquity upon the lands under their respective jurisdictions may be granted by the Secretaries of the Interior, Agriculture, and War to institutions which they may deem properly qualified to conduct such examination, excavation, or gathering, subject to such rules and regulations as they may prescribe: *Provided*, That the examinations, excavations, and gatherings are undertaken for the benefit of reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects, and that the gatherings shall be made for permanent preservation in public museums.

SEC. 4. That the Secretaries of the Departments aforesaid shall make and publish from time to time uniform rules and regulations for the purpose of carrying out the provisions of this Act.

Missouri Historical Society. — The proposal of the Missouri Historical Society to vest the beneficial ownership of all the property owned by it in the people of the State of Missouri, as previously mentioned in these pages (vol. VII, no. 3, p. 577), was unanimously adopted by the Society at a meeting held May 25th last. The clauses that are of special interest to archeologists read as follows:

“To hold all its lands, premises, improvements, collections of books, manuscripts, portraits, prehistoric remains, relics, moneys, choses in action and all its property and effects of every kind and description, now

owned or hereafter acquired, in trust for the use and benefit of the people of the State of Missouri, forever, the Society reserving to itself the right and power at all times :

“ 1. To retain, at the City of St. Louis, the custody of all of said property and collections, forever ;

“ 2. To borrow money for the purpose of acquiring necessary real estate, or for erecting, or altering or adding to a building upon real estate owned by it, for the housing of said collections, and as security for the repayment of any sum or sums so borrowed may encumber only its real estate ;

“ 3. To sell, exchange or dispose of, as may reasonably appear to it to be for the interest of its *cestui que trust*, and in furtherance of the purposes of the Society, any or all of its real property, and any article or articles from its collections, applying the proceeds thereof to the purposes of this trust, having in view always the acquisition, preservation and exhibition of the best possible collection of such articles of historical value and interest as it is the object of the Society to collect and preserve ;

“ 4. To have exclusive right to determine the policy to be observed in carrying out the purposes of this trust, controlled only by the rules of law in such cases provided.”

Folk-lore Meetings in California. — The seventh meeting of the California Branch of the American Folk-Lore Society was held in South Hall, University of California, Berkeley, on Tuesday, March 20, 1906, at 8 P. M. Mr Charles Keeler presided. The following were elected to membership in the Society : Dr E. K. Putnam, Stanford University, and the Department of Education of Ontario, represented by Dr David Boyle, Toronto. Professor Vernon L. Kellogg of Stanford University gave an address, illustrated with lantern slides, on “In Samoa.”

The eighth meeting of the California Branch was held at Cloyne Court, Berkeley, Tuesday, April 17, 1906, at 8 P. M., Mr Charles Keeler presiding. Dr J. W. Hudson was elected to membership in the Society. On motion, Charles Keeler, A. H. Allen, and P. E. Goddard, previously appointed by the Berkeley Folk-Lore Club as a committee to report on the feasibility of making a special study of the folk-lore of Berkeley and vicinity, were elected to represent the California Branch and to secure the coöperation of the two societies in the undertaking. A report reviewing the work of the Society during the first year of its activity, which closed with this meeting, was read by the secretary. Dr H. du R. Phelan, Captain U. S. Volunteers, gave the address of the evening on “The Peoples of the Philippine Islands,” based on a sojourn of several

years in different parts of the archipelago, and illustrated with numerous ethnological specimens. At its conclusion Dr Phelan's talk was discussed by the members. The acting president thereupon announced the conclusion of the first year of the Society's existence. Forty-five persons attended the meeting.

A. L. KROEBER, *Secretary*.

Earthquakes and Tribal Movements in the Southwest. — In the Zuñi creation and migration myth interpreted by Mr Cushing (Thirteenth Report of the Bureau of Ethnology, 1896), there is mention of the endeavor of the people to reach the center of "the lap of the Earth Mother." The Zuñi are said to have known that they were not in the center because they experienced earthquakes, and whenever this phenomenon occurred they regarded their place of settlement as unstable and moved to another. This, Mr Cushing pointed out, explains some of the enforced tribal movements that have taken place.

It would appear, however, that another factor in connection with earthquakes has been responsible for the movements of tribes in the Southwest: this is the suppression of springs by seismic disturbances. In a number of recorded instances earthquakes have caused the flow of some springs to cease, other springs to flow more freely, and new springs to gush forth. There were noteworthy instances of all these during the great earthquake that extended through Sonora and southern Arizona in May, 1887. The vital importance of springs to the Pueblo Indians is realized by those who have examined the conditions under which these people live in the semi-arid Southwest; hence no greater calamity could befall a population than the loss of its source of water supply. Beside the terror engendered by earthquakes, it may perhaps be assumed that the disturbance and fouling of the water which accompany them would prove a sufficient incentive to the native to cause him to move to another locality.

WALTER HOUGH.

Weston Flint. — We regret to announce the death, on April 6th, of Colonel Weston Flint, lawyer, journalist, former librarian of the Washington Public Library, and for many years secretary of the Anthropological Society of Washington. Colonel Flint was born in Pike, Wyoming county, New York, July 4, 1825, entered Alfred Academy in 1855, and was graduated from Union College in 1860, receiving the degree of A.M. in 1863. After teaching in New York, Pennsylvania, and Ohio, he went to St Louis, and while looking after the sick and wounded of the Federal Army in the hospitals was appointed military agent for Ohio. In 1866-69 he was attorney for claims in St Louis, and took an active interest in

state and national politics. He became editor and publisher of the *St Louis Daily Tribune* and was the organizer and secretary of the second board of the Geological Survey of Missouri. From 1871-74 Colonel Flint served as United States Consul at Chin Kiang, China. After devoting several years to the study of law he was placed in charge of the scientific library of the United States Patent Office, a position which he held from 1877 to 1887. In 1889 he was appointed statistician of the Bureau of Education, preparing the first list of *Public, Society, and School Libraries* in the United States and Canada. On the establishment of the Washington Public Library, in 1898, Colonel Flint was selected as its first librarian, and he labored zealously for its interests until ill health compelled him to relinquish the task about a year prior to his death. He was a member of the Anthropological Society of Washington and for many years one of its most earnest workers.

Woodbury Lowery.—Students of Spanish-American history and ethnology will be grieved to learn of the death of Woodbury Lowery, at Taormina, Sicily, on April 11, after a few days' illness. Mr Lowery was born in New York City, February 17, 1853, and after graduation took a two-years' post-graduate course at Harvard, receiving the degree of A.M. in 1876. He afterward studied law in Washington, D.C., was admitted to the bar of the District and to that of the United States Supreme Court, and practised patent law from 1881 until 1897, meanwhile editing several works on the subject. Developing a keen interest in Spanish-American history, he abandoned the practice of his profession and henceforward devoted his time and energies to his newly chosen field, publishing in 1901 *The Spanish Settlements within the Present Limits of the United States*, a work valuable alike to the historian and the student of the American Indians. In 1905 Mr Lowery completed and published a second volume, covering the history of Florida from 1562 to 1574. His collection of valuable books and manuscripts relating to the early history of Spanish America is bequeathed to the Library of Congress.

Berkeley Folk-Lore Club.—The fourth regular meeting of the Berkeley Folk-Lore Club during 1905-06 was held in the Faculty Club of the University of California on Tuesday evening, April 3. President A. F. Lange presided. On motion a committee consisting of Charles Keeler, A. H. Allen, and P. E. Goddard was appointed to report on the feasibility of a special investigation of the folk-lore of Berkeley. Dr P. E. Goddard then presented a paper entitled "Some Examples of Tolowa Tales", which was discussed at length. A. L. KROEBER, *Secretary*.

THE JUSTIN WINSOR PRIZE of \$100, offered by the American Historical Association for the encouragement of historical research, will be awarded for the year 1906 to the best unpublished monograph in the field of American History that shall be submitted to the Committee of Award on or before October 1, 1906. The monograph must be based on independent and original investigation in American History, by which is meant the history of any of the British colonies in America to 1776, of other portions of the continent which have since been included in the territory of the United States, and of the United States. It may deal with any aspect of that history—social, political, constitutional, religious, economic, ethnological, military, or biographical, though in the last three instances a treatment exclusively ethnological, military, or biographical would be unfavorably received. Information respecting the conditions under which the prize is awarded will be furnished by Professor Charles H. Hull, Cornell University, Ithaca, N. Y.

THE HERBERT BAXTER ADAMS PRIZE of \$200, offered biennially by the American Historical Association, for the encouragement of historical research, will be awarded for the year 1907 to the best unpublished monograph in the field of European History that shall be submitted to the Committee of Award on or before October 1, 1907. The general conditions are similar to those regarding the Justin Winsor prize. Information will be furnished by Professor Charles Gross, 11 Putnam ave., Cambridge, Mass.

DR ALBERT ERNEST JENKS has recently finished classifying and cataloguing, for the American Museum of Natural History, a collection of more than four thousand objects from the Philippine islands, a task occupying ten weeks. Doctor Jenks has been elected to a professorship in the department of sociology of the University of Minnesota, although his work will be largely in anthropology and ethnology. The University is to be congratulated for its progressiveness in joining the ranks of the educational institutions of the country that now regard the Science of Man as an essential part of their curriculum, and for procuring the services of an instructor of such ability and experience as Doctor Jenks. While in the East Dr Jenks gave illustrated addresses on the People of the Philippines before the American Ethnological Society of New York, the Boston Branch of the American Folk-Lore Society, and the Anthropological Club of Harvard University.

DR T. MITCHELL PRUDDEN, of the College of Physicians and Surgeons, Columbia University, who has spent several seasons in the study

of Southwestern archeology, has presented his collection, numbering several hundred specimens, to the Yale University Museum. The collection consists largely of pottery, textile fabrics, ornaments, and objects used in ancient religious rites. With the collection Dr Prudden gives the necessary cases, his field notes, and a map of the region drawn by himself.

A REUNION of the Congrès de l' "Alliance Française" et des Sociétés de Géographie will be held at Marseilles, September 10-15, on the occasion of the Exposition Coloniale. The meetings of the Congress, which will be international in character, are to be held in the Grand-Palais. The work of the Congress will be divided into two sections under the respective auspices of the Geographical Societies and the Association Nationale pour la Propagation de la Langue Française dans les Colonies et à l'Étranger. M. Jacques Léotard is general secretary.

REV. CHARLES JAMES WOOD, author of *Survivals in Christianity* (1892), a collection of lectures delivered by him before the Episcopal Theological Seminary of Cambridge, died suddenly in his rectory at York, Pennsylvania, May 5. Mr Wood was a graduate of Harvard (1875), had contributed papers to the Victoria Institute, the Folk-Lore Society, and other organizations, and for years was on the staff of the *Critic* and the *Outlook*.

THE TITLES presented in a communication, published in May, by the committee of organization of the International Congress of Americanists, to be held at Quebec, September 10-15, give promise of the success of the Fourteenth Session of the Congress. The titles of thirty-nine papers had been submitted, and others have since been registered.

CAPTAIN GEORG FRIEDERICI, of the German army, well known for his studies on military and American Indian subjects, is now a privat-docent at the University of Leipzig. Captain Friederici's doctor's thesis deals with scalping, head-hunting, and related war customs of the Indians of both Americas.

J. M.

DR W. C. FARABEE, of the anthropological department of Harvard University, with three students, next year will conduct a research expedition about the headwaters of the Amazon. For a time a base will be established at Arequipa, Peru. The party will be gone three years.

THE SECOND SESSION of the Congrès Préhistorique de France will be held at Vannes, Morbihan, August 21-26. Professor Adrien de Mortillet is president and Dr Marcel Baudouin (21, Rue Linné, Paris) general secretary of the committee of organization.

FOR THE benefit of members of the American Anthropological Association who desire to consult the Constitution, it may be said that the latter will be found in Volume 7, No. 4, October-December, 1905, of the *American Anthropologist*.

DR EDWARD ANTHONY SPITZKA, fellow and demonstrator of anatomy in the College of Physicians and Surgeons, Columbia University, New York, has been elected professor of general anatomy in Jefferson Medical College, Philadelphia.

DR FRANKLIN H. GIDDINGS, professor of sociology in Columbia University, has been appointed professor of the history of civilization, filling the chair founded recently by Mrs Maria H. Williamson with a fund of \$150,000.

FIELD MUSEUM OF NATURAL HISTORY. — By resolution of the board of trustees of the Field Columbian Museum, Chicago, dated November 8th last, the name of the museum was changed to Field Museum of Natural History.

DR J. W. LOWBER, F.R.G.S., member of the Royal Societies Club of Austin, Texas, and of the American Anthropological Association, has been elected to membership in the Royal Asiatic Society of London.

YALE UNIVERSITY has conferred the degree of doctor of science on Professor Henry H. Donaldson, head of the department of neurology of the Wistar Institute of Anatomy, of the University of Pennsylvania.

WE REGRET to record the death, on May 16th, of Dr Hermann Obst, Director of the Museum für Völkerkunde in Leipzig. Professor A. Bergt has received an appointment as acting director of the Museum.

MR ROBERT Y. CUMMINGS has given \$20,000 to the Field Museum of Natural History, Chicago, to defray the expenses of an ethnological study of the native tribes of the Philippine islands.

DR CHARLES PEABODY has been appointed instructor in European archeology in the Department of Anthropology of Harvard University for one year from September 1st next.

MR CLARENCE B. MOORE, of Philadelphia, has been elected a corresponding member of the Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte.

DR J. WALTER FEWKES, of the Bureau of American Ethnology, has been elected a corresponding member of the Boston Society of Natural History.

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